

Nº 375

Economic Research Aid

SOVIET RAILROAD CARS:  
A REFERENCE HANDBOOK FOR COLLECTION  
AND RESEARCH



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March 1962

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## FOREWORD

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This publication is designed to assist in collection and research by providing identification of railroad cars used on the mainline railroads of the USSR. Among its many applications, it should be of assistance in identifying rolling stock engaged in activities of priority intelligence interest, [REDACTED]

[REDACTED] The information and illustrations in this publication have been taken, for the most part, from Soviet books and periodicals.

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## FOREWORD

To simplify the identification of Soviet railroad cars, this publication is divided into sections by type of car, and the illustrations for each section have been numbered as follows so as to designate the type of car:

Boxcars	Figures B-1 through B-16
Gondolas	Figures G-1 through G-24
Flatcars and transporters	Figures F-1 through F-9
Tank cars	Figures T-1 through T-33
Refrigerator and heater cars and trains	Figures R-1 through R-20
Passenger, dining, baggage, and mail cars	Figures P-1 through P-11
Other equipment	Figures O-1 through O-20

When possible, each type of car has been illustrated by a photograph, a drawing listing locations of markings information, a drawing indicating the main parts of the car, or a drawing showing important dimensions (in feet). All dimensions are approximate. Capacities are given in metric tons.

Because the colors with which Soviet railroad cars are painted often indicate the general type of cargo carried, there is included in this publication a table\* identifying the colors and inscriptions used on Soviet freight cars. Three other tables\*\* present specialized markings information and the dimensions of Soviet railroad cars.

The inventory of Soviet mainline freight cars as of 1960 is estimated to have been about 900,000 units. Some idea of the composition of the inventory can be gained from published Soviet statistics. A total of 496,520 units, more than one-half of the cars included in the inventory, were produced during the 16 postwar years 1945-60. It is estimated that approximately 40 percent of this postwar production were gondolas; 25 percent, boxcars; 14 percent, flatcars; 12 percent, tank cars; and 3 percent, refrigerator cars. In addition to these units, the Soviet railroad car industry has produced many special types, some of which are modifications of standard types.

In 1960 the USSR produced about 36,400 freight and 1,655 passenger railroad cars, most of which were of modern four-axle design. In the past the USSR had a number of two-axle railroad cars, but by the end of 1960 about 75 percent of all Soviet cars were of the four-axle type. For this reason, only a few illustrations of two-axle cars are presented.

\* P. 83, below.

\*\* Pp. 88, 89, and 90, respectively, below.

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## SOVIET RAILROAD CARS

### I. Boxcars

Boxcars are designed for the transport of grain and other dry loads that are affected by atmospheric conditions and for packaged and valuable freight. Boxcars are equipped with hatches and doors that can be closed to protect the freight from the elements.

Boxcars also are frequently used for the transport of cattle. The bodies of these cars are often latticed and equipped with feeders, troughs, tanks for water, and other equipment.

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Figure B-1. Boxcars showing a two-axle type (left) and a four-axle type (right)

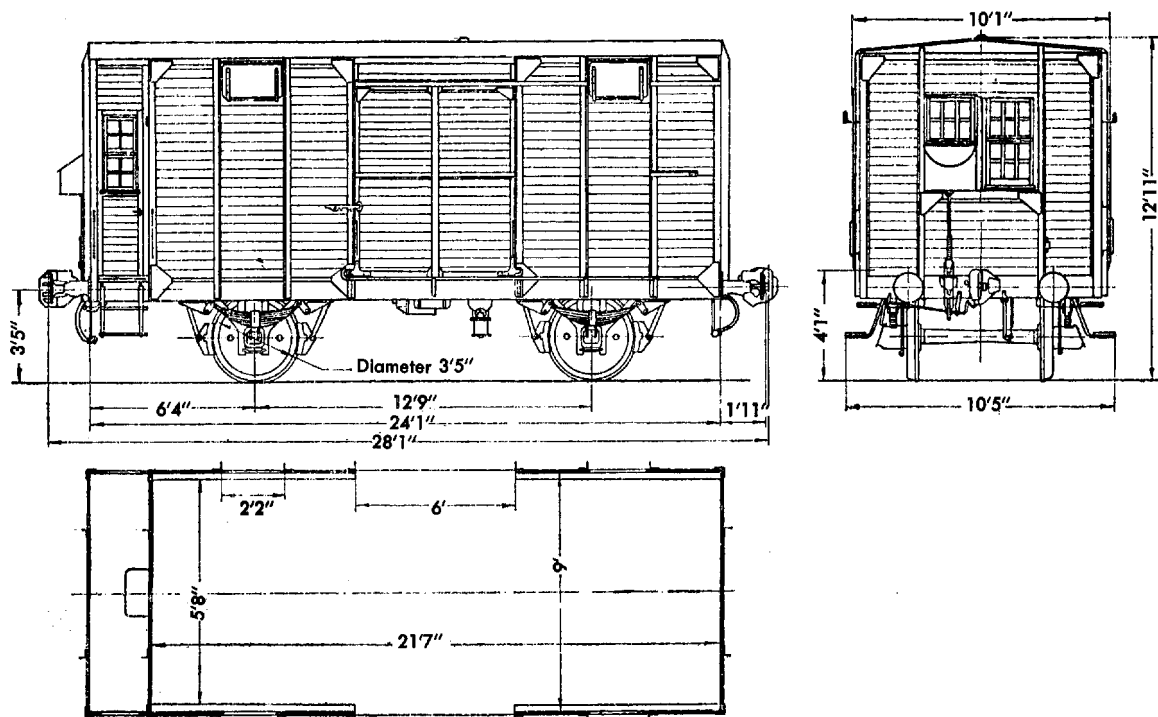


Figure B-2. Sketch of a two-axle boxcar with a capacity of 20 metric tons with a brakeman's cabin, of the type constructed during 1928-29

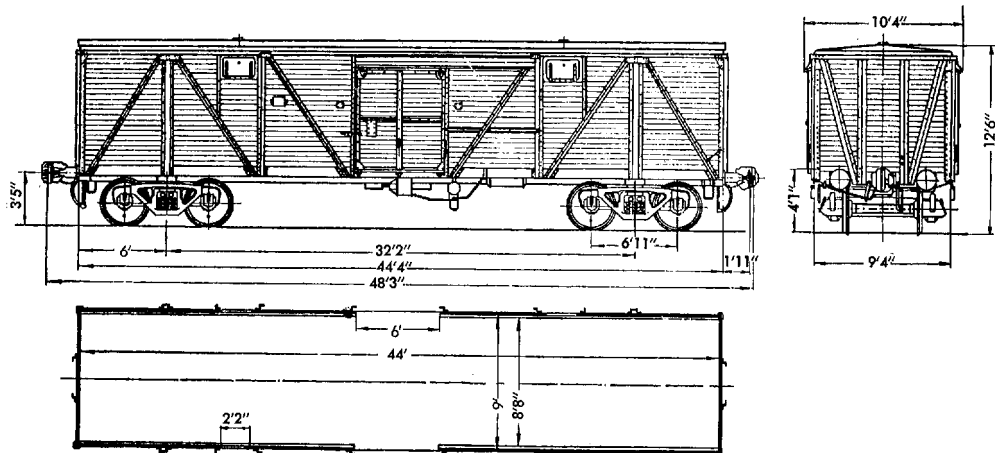
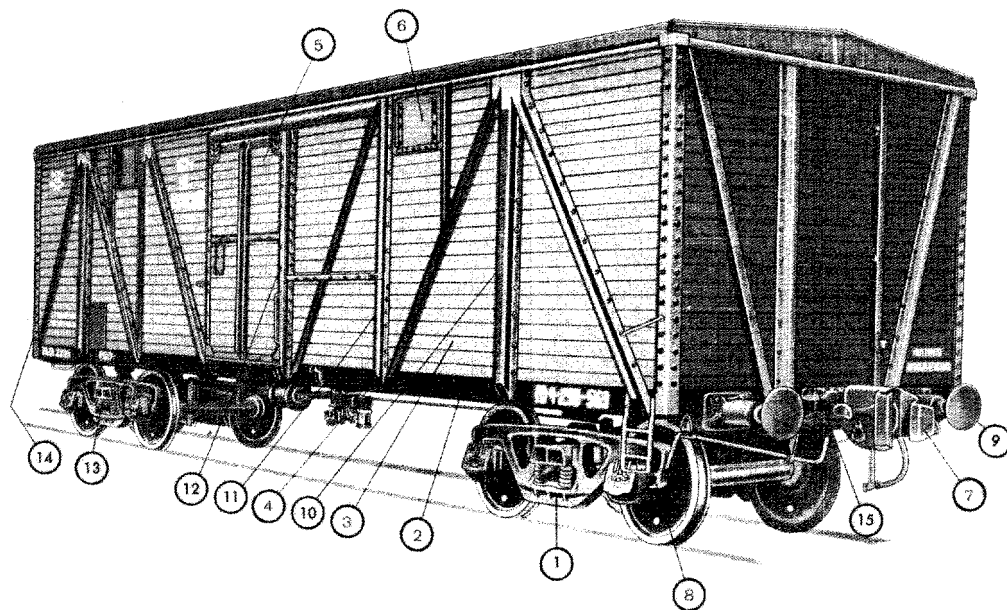


Figure B-3. Sketch of a four-axle boxcar with a capacity of 60 metric tons



- |                      |                    |
|----------------------|--------------------|
| 1. Truck             | 9. Buffer          |
| 2. Frame             | 10. King post      |
| 3. Body              | 11. Hatch post     |
| 4. Automatic brake   | 12. Door post      |
| 5. Sliding door      | 13. Diagonal strut |
| 6. Hatch             | 14. Corner post    |
| 7. Automatic coupler | 15. Frontal post   |
| 8. Sill step         |                    |

Figure B-4. Main parts of a four-axle boxcar with a capacity of 62 metric tons

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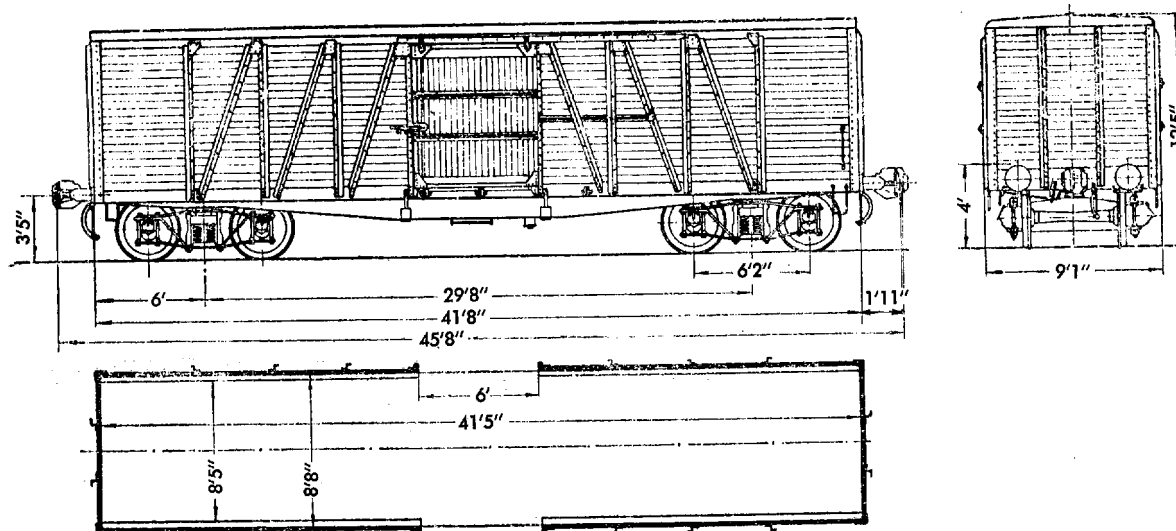
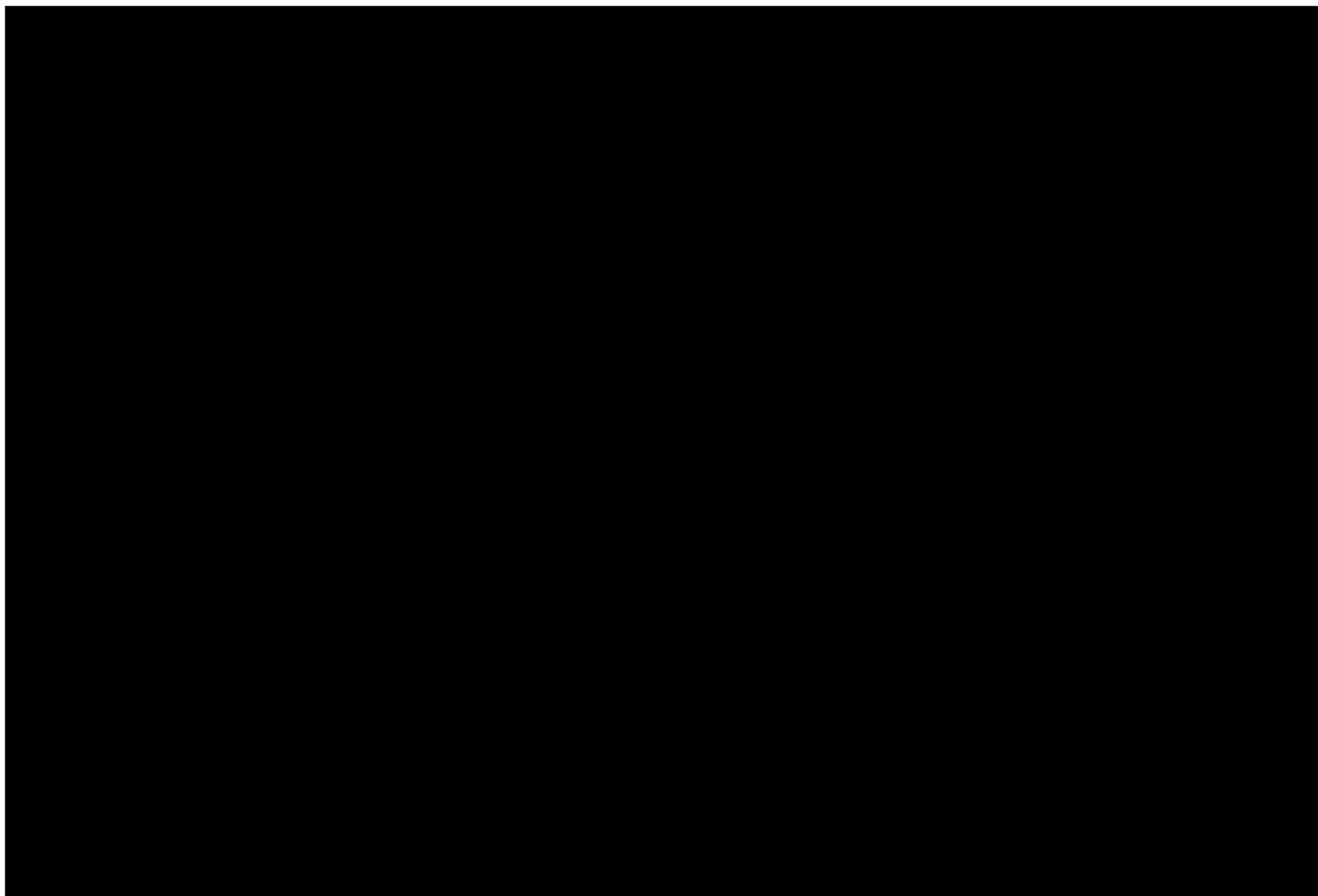


Figure B-6. Sketch of a four-axle boxcar with an over-all length of 45 feet 8 inches and a capacity of 40 metric tons

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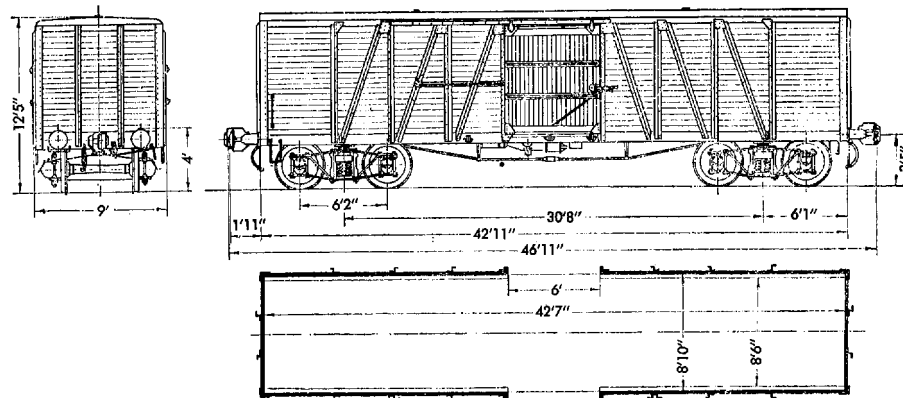


Figure B-7. Sketch of a four-axle boxcar with an over-all length of 46 feet 11 inches and a capacity of 40 metric tons

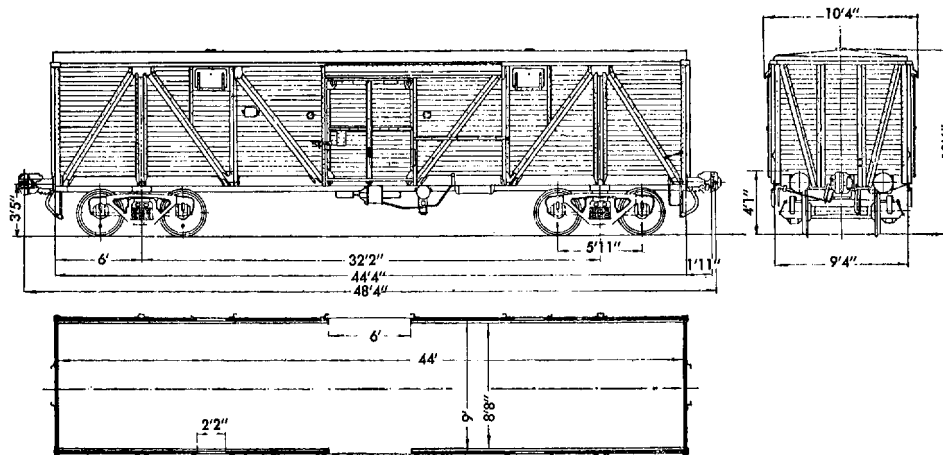


Figure B-8. Sketch of a four-axle boxcar of welded construction with a capacity of 60 metric tons

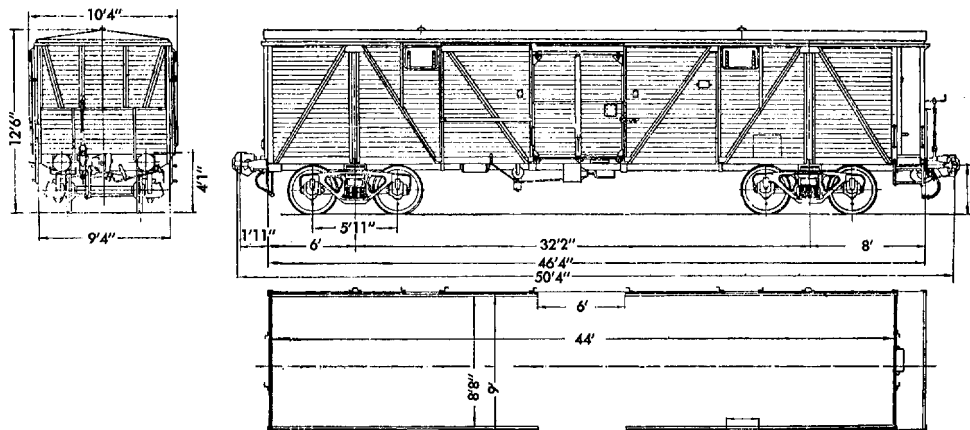
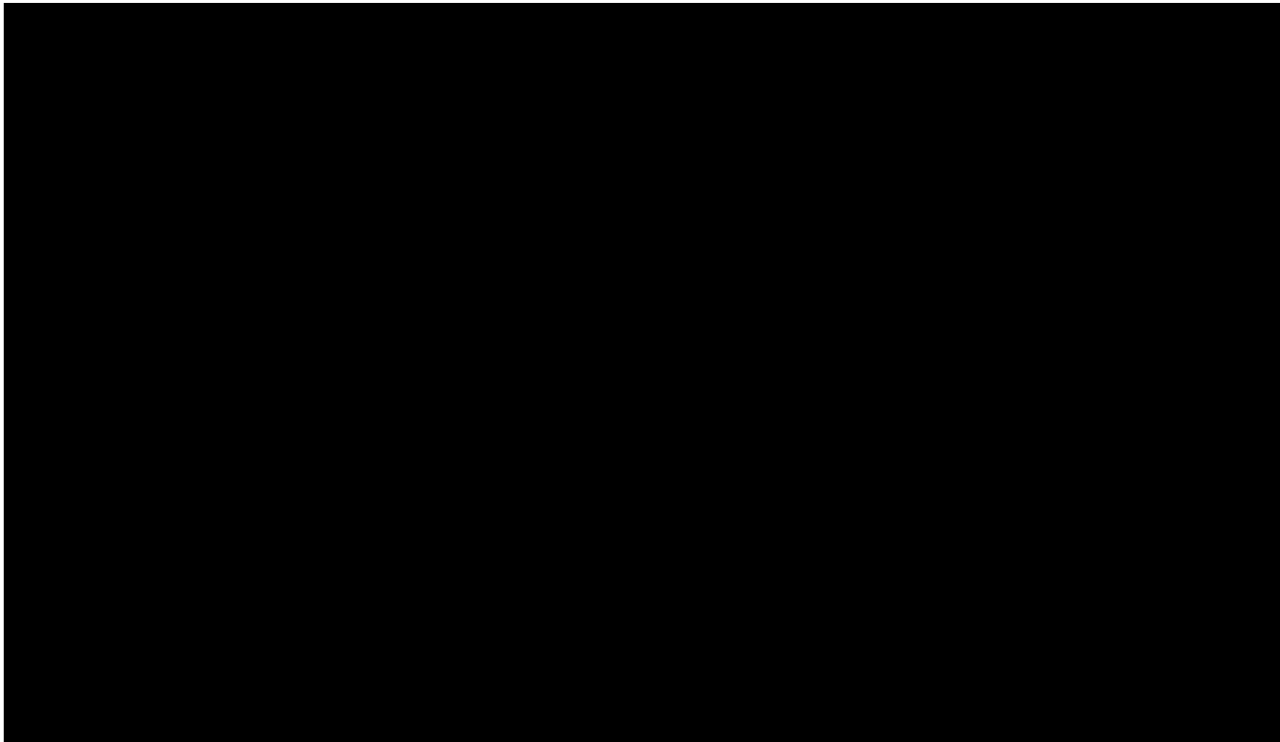


Figure B-9. Sketch of a four-axle boxcar of riveted and welded design with a capacity of 50 metric tons with a brakeman's platform, of the type constructed during 1936-48

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Figure B-11. Four-axle cattle car. The inscription on the upper right, вагон для перевозки скота, means "car for the transport of cattle." [REDACTED]

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[REDACTED] This car was  
produced by the Altay Railroad Car Plant.



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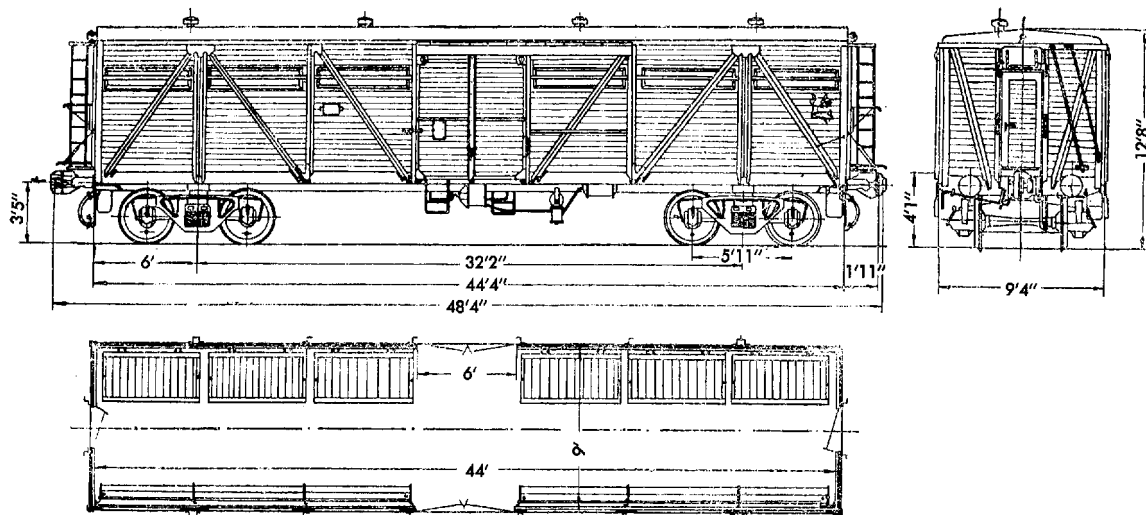


Figure B-12. Sketch of a four-axle cattle car. The feed and water troughs that line the sides of the car are shown in the sectional view of the top. Notice the four vents on the roof of the car, not ordinarily a feature of other types of boxcars.

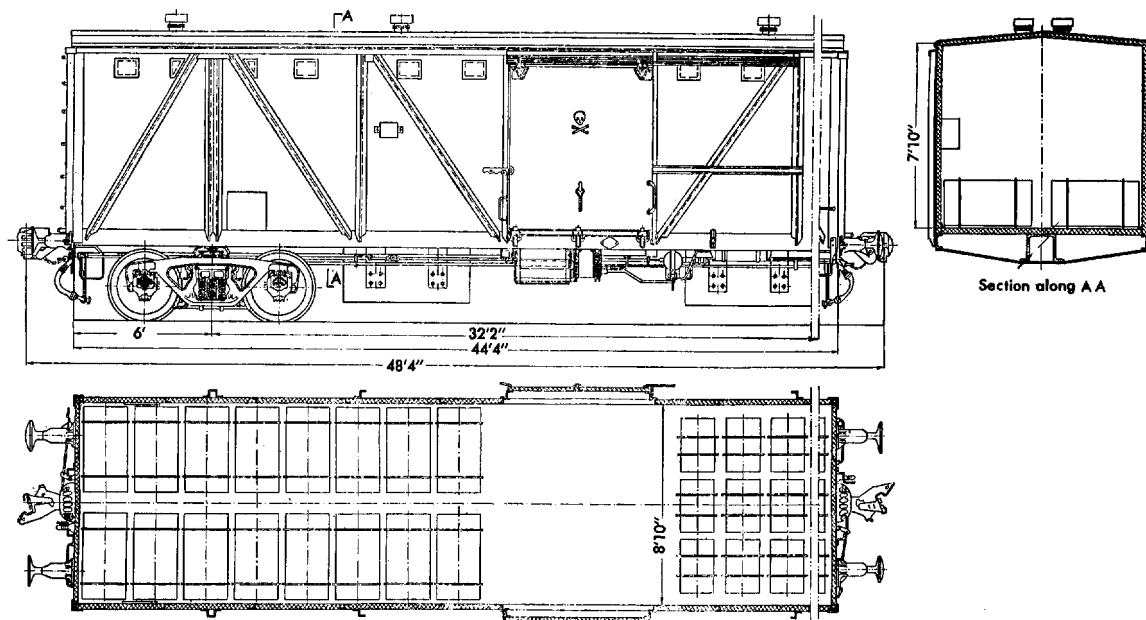


Figure B-13. Sketch of a four-axle boxcar for the transport of ethyl fluids (1952 model). This car, designed by the Kalinin Railroad Car Plant, was built to carry ethyl fluid in metal barrels from the producing plants to plants of the oil industry. The barrels are shown in place in the sectional view of the top.

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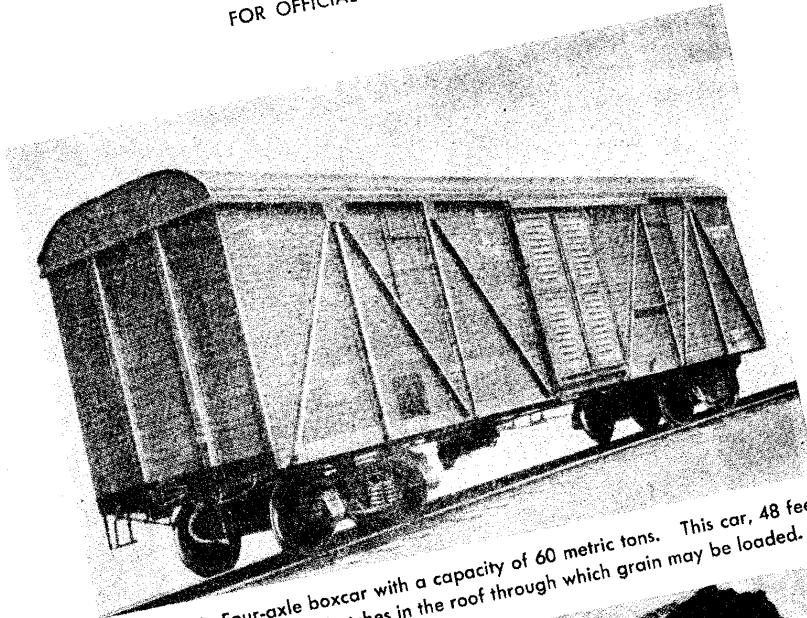


Figure B-14. Four-axle boxcar with a capacity of 60 metric tons. This car, 48 feet 4 inches long, has four hatches in the roof through which grain may be loaded.



Figure B-15. "Universal" type of railroad car with a length of 46 feet and a capacity of 57 metric tons. This car, produced in 1955 by the Urals Railroad Car Plant in Nizhniy Tagil, is able to carry a wide variety of freight and may be used as a boxcar with roof sections closed or as a gondola with the top open. The large word on the side of the car, ОПЫТНЫЙ, means "experimental." The photograph shows the roof sections closed.

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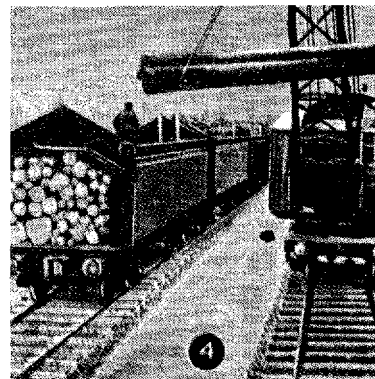
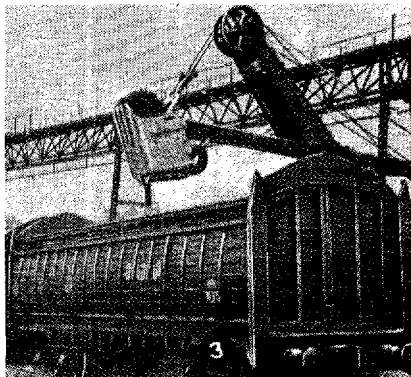
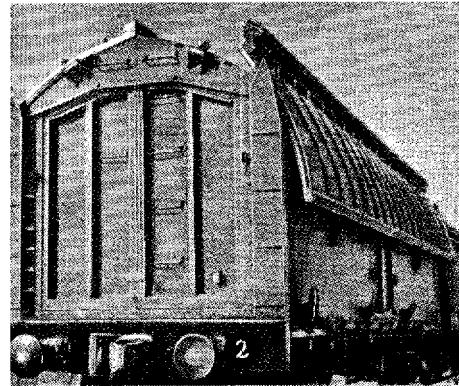
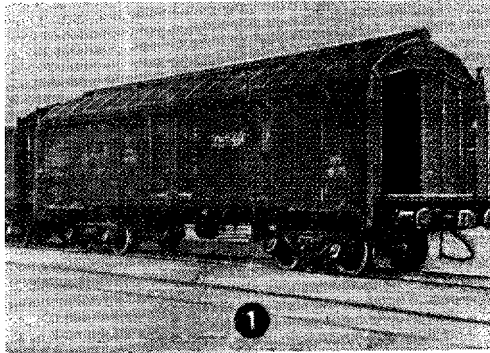


Figure B-16. "Universal" type of railroad car, showing (1) the door opened on the end of the car, (2) one-half of the roof section moved to the side of the car, (3) ore being loaded into the top of the car, and (4) lumber being loaded into the car by means of a railroad crane. These photographs show two models of the car, the first three pictures of cars with a curved roof and the fourth picture of cars with a straight roof.

## II. Gondolas

Gondolas (полувагоны-гондолы) (literally "semicar gondolas") are railroad cars having sides but not fixed roofs (except for a few special types) and are designed for transporting coal, ore, slag, coke, and other bulk-load freight. These cars are produced in a variety of types, including some with drop ends, some with door-opening ends, and some with swinging side doors. Removable covers for gondolas have been developed which do not interfere with loading and unloading but which protect the cargo from the weather. These covers, for example, permit the shipment of sheet steel in rolls or bundles without the wrappings that would be required for protection against the weather if the material were shipped in uncovered gondolas.

Gondolas often have hatches in their floors that open for unloading and are therefore sometimes referred to as "self-unloaders." Metal dumpcars (думпкары) or semicar dump trucks (полувагоны-самосвалы) are related to self-unloaders and are designed to transport ores and construction materials for short distances. Their loads are dumped by tilting the car body to the side by means of pneumatic mechanisms.

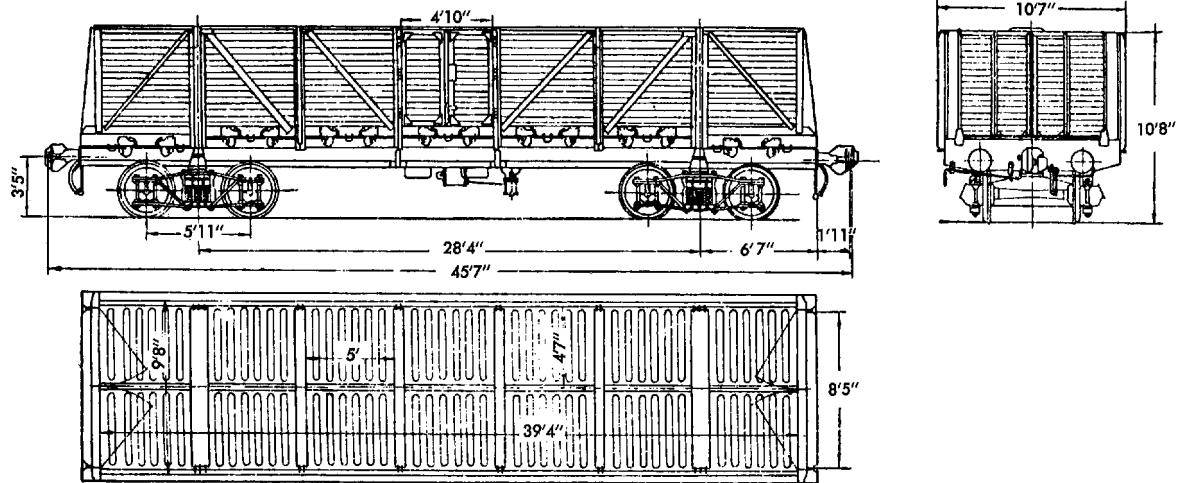


Figure G-1. Sketch of a four-axle gondola with a capacity of 60 metric tons (1941 model). This gondola, designed by the Urals Railroad Car Plant in Nizhny Tagil, has the framework of the body welded to the frame of the car and has hatches in the floor.

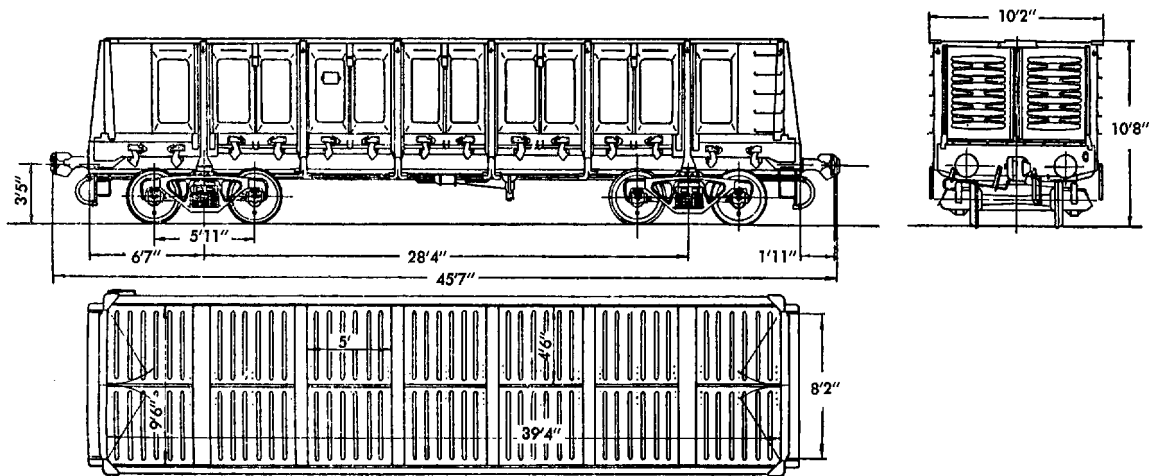


Figure G-2. Sketch of a four-axle all-metal gondola with a capacity of 60 metric tons

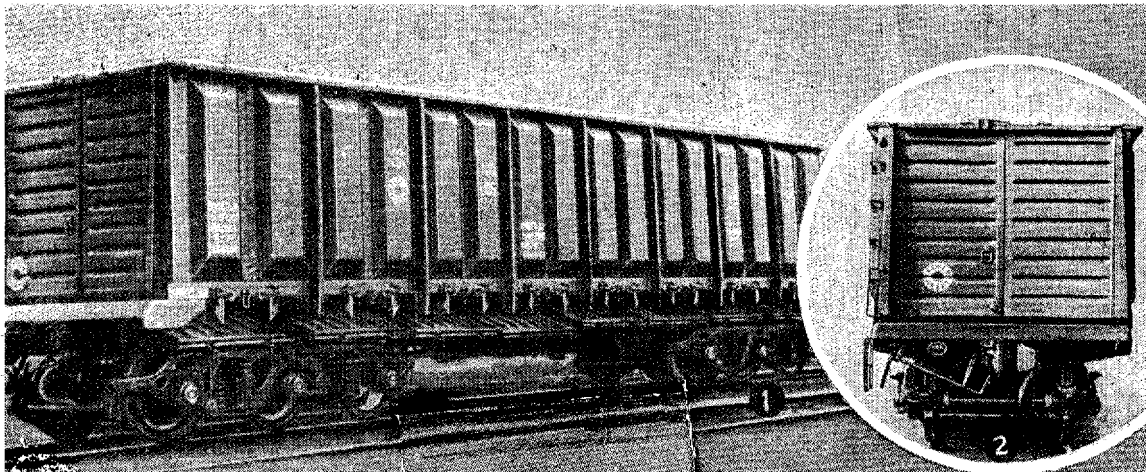
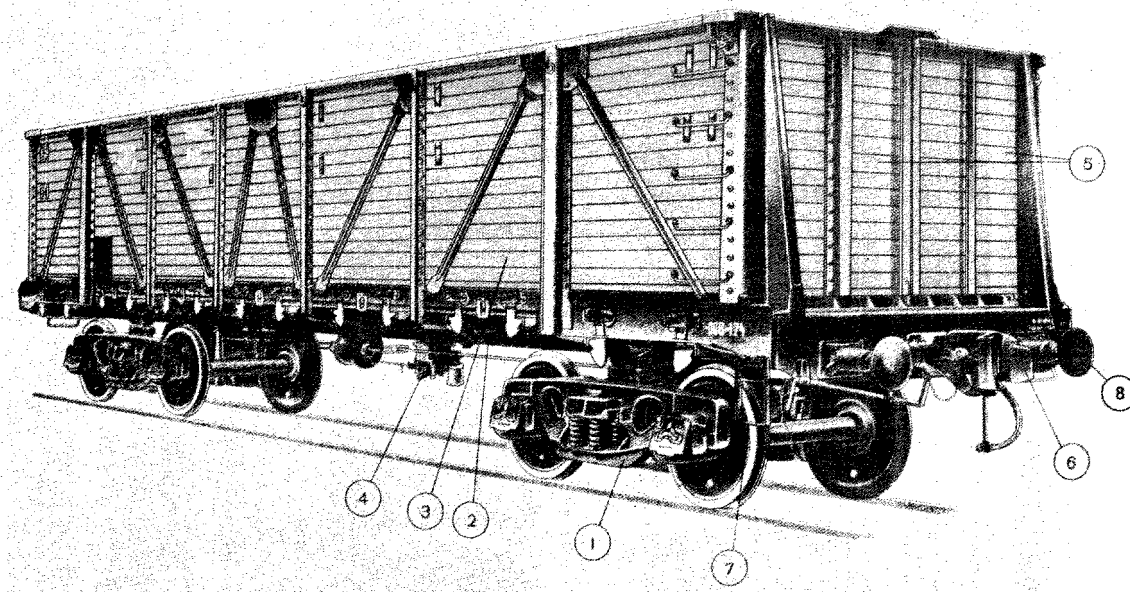


Figure G-3. Six-axle gondola with a capacity of 100 metric tons. This car, 49 feet 10 inches long, has double-wing doors on both ends that may be opened for loading and is designed for speeds up to 100 kilometers per hour. Cars of this type with capacities up to 93 metric tons were produced as early as 1953 and are currently being produced to carry 105 metric tons. The white circles on the end and on the side of the car are stylistic representations of a bearing and are used to mark cars equipped with roller bearings.

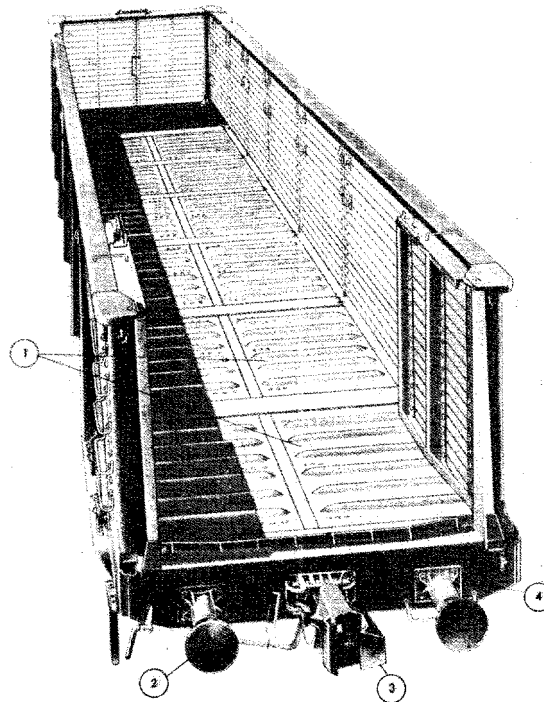


- 1. Truck
- 2. Frame
- 3. Body
- 4. Automatic brake

- 5. End doors
- 6. Automatic coupler
- 7. Sill step
- 8. Buffer

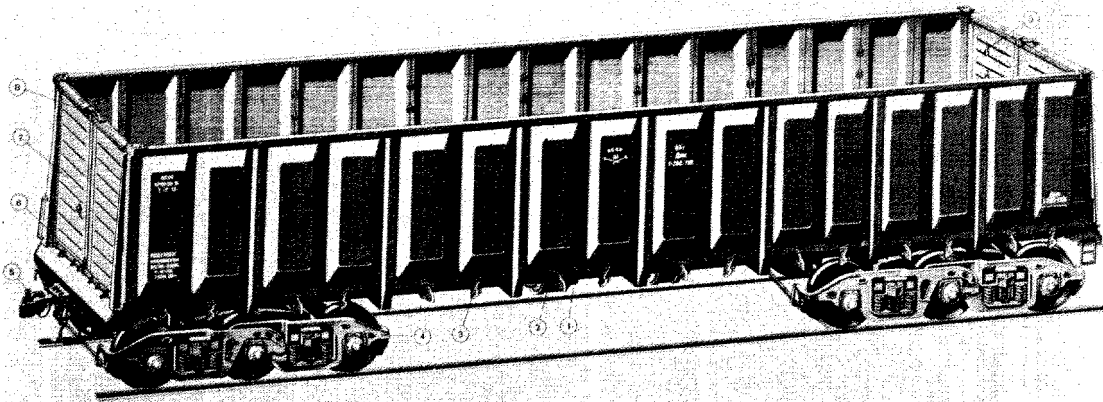
Figure G-4. Main parts of a four-axle gondola with a capacity of 62 metric tons (side and end view)

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- |                          |                      |
|--------------------------|----------------------|
| 1. Hatches for unloading | 3. Automatic coupler |
| 2. Buffer                | 4. End girder        |

Figure G-5. Main parts of a four-axle gondola with a capacity of 62 metric tons (end view, with the doors at the front folded against the interior)



- |                      |                              |
|----------------------|------------------------------|
| 1. Body              | 6. Lower door lock           |
| 2. Brake cylinder    | 7. Door                      |
| 3. Hatch lock        | 8. Upper door lock           |
| 4. Three-axle truck  | 9. Fastener for wooden poles |
| 5. Automatic coupler |                              |

Figure G-6. Main parts of a six-axle gondola with a capacity of 93 metric tons. The body of this gondola has 2 double-winged end doors and 16 unloading hatches that form the floor of the car in the closed position. The car is equipped with roller bearings. Its use in place of a 60-ton car permits an increase of 30 to 35 percent in the load of a train without any increase in the length of the train. The car is about 53 feet 10 inches long, and its interior is about 10 feet 5 inches wide.

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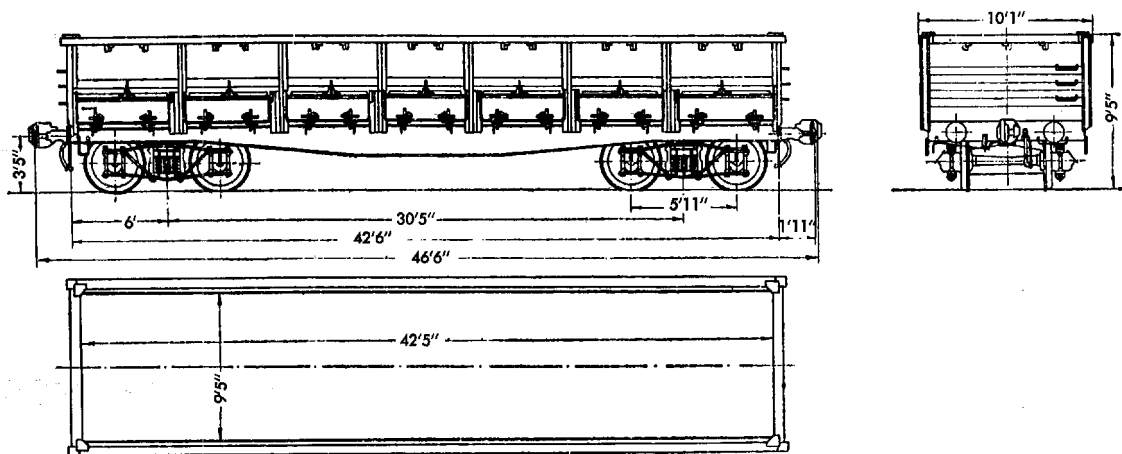


Figure G-8. Sketch of a four-axle gondola with a capacity of 57 metric tons



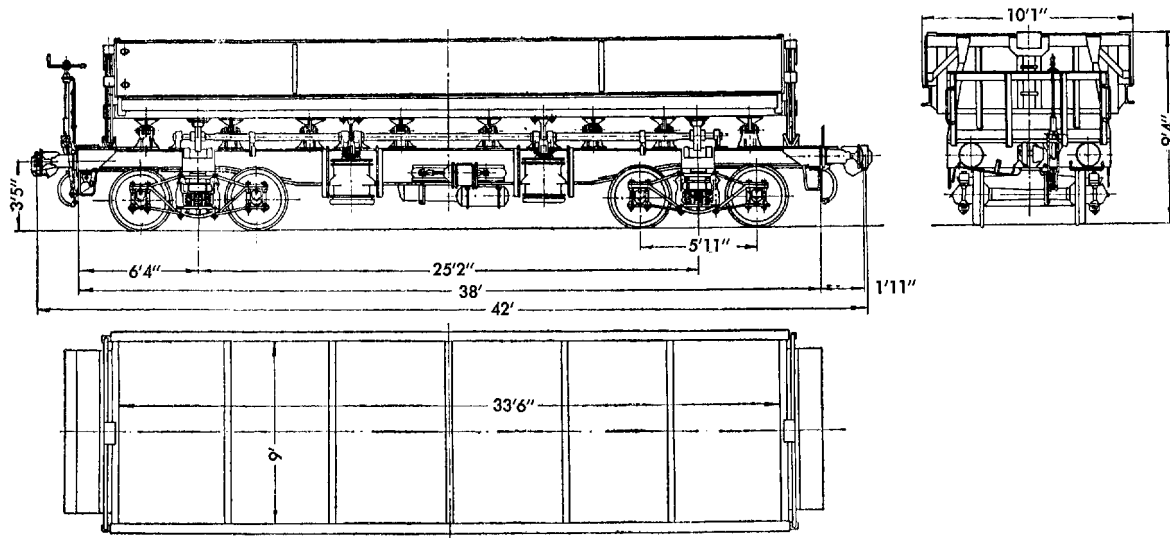


Figure G-9. Sketch of a four-axle dumpcar with a capacity of 50 metric tons

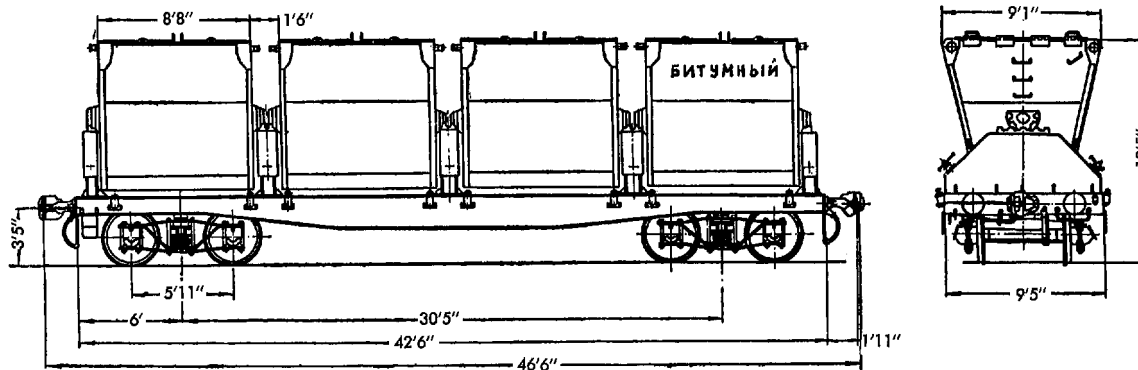


Figure G-10. Sketch of a four-axle bunker gondola with a capacity of 40 metric tons for transporting bitumen

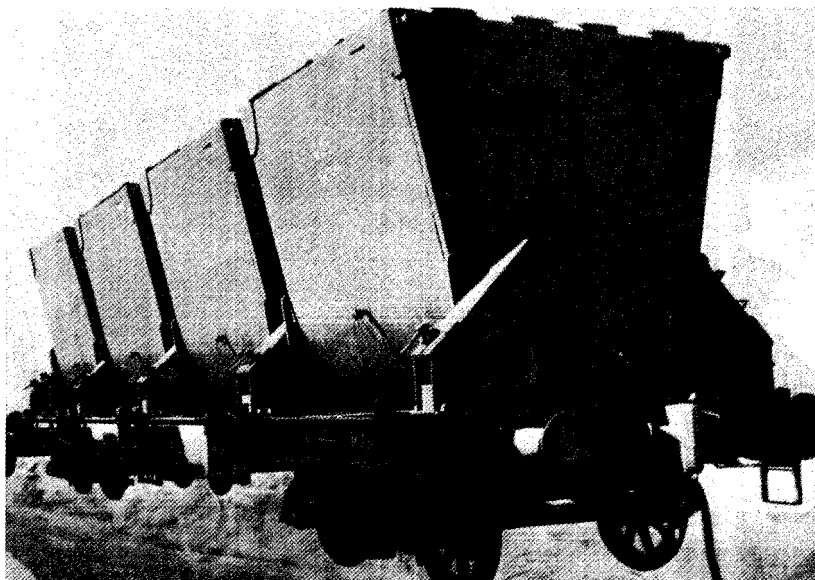


Figure G-11. Four-axle bunker gondola for transporting bitumen

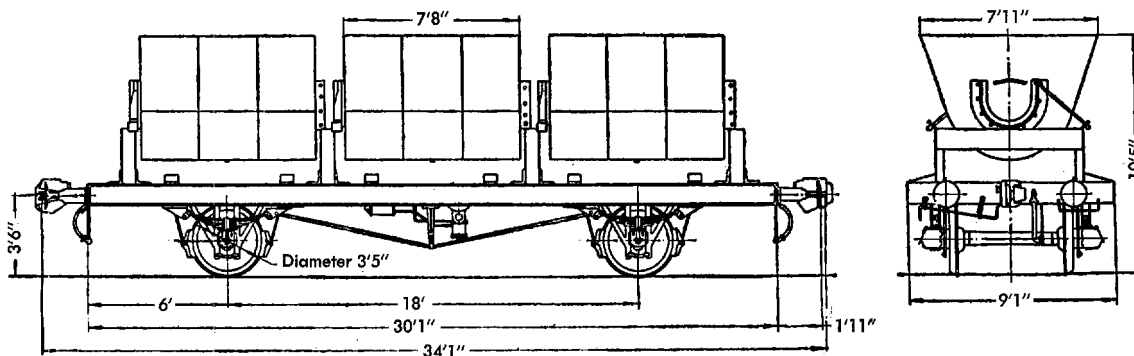


Figure G-12. Sketch of a two-axle bunker gondola with a capacity of 15 metric tons for transporting bitumen (1936 model)

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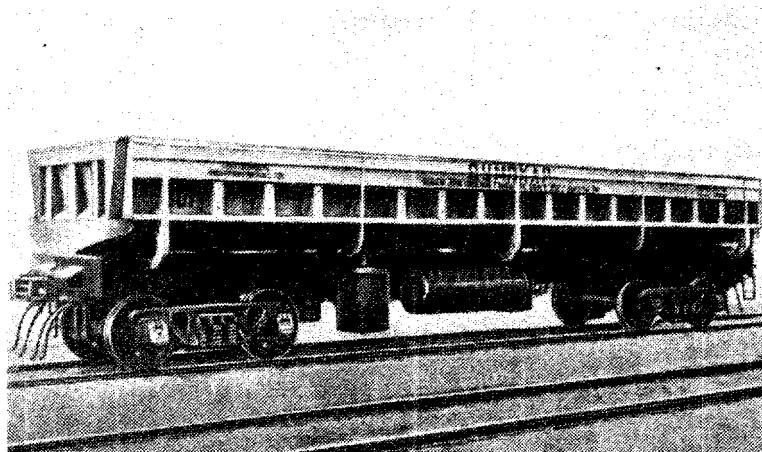
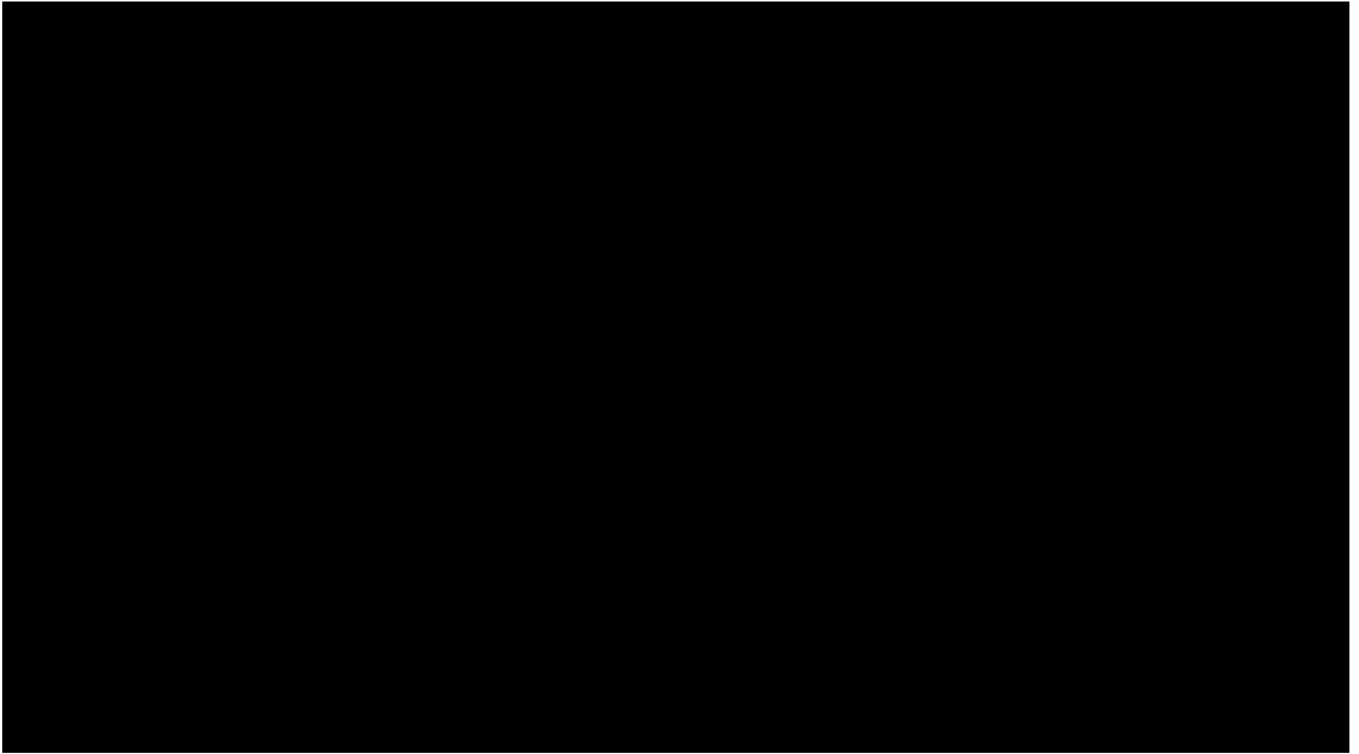


Figure G-14. Four-axle dumpcar with a capacity of 80 metric tons. This car, 47 feet 11 inches long, has a volume of 38 cubic meters and is 5 feet 6 inches high from the top of the rail to the top of the body. The car, designed for transporting ore, was produced by the Dnepro-dzerzhinsk Railroad Car Plant imeni Pravda about 1961.

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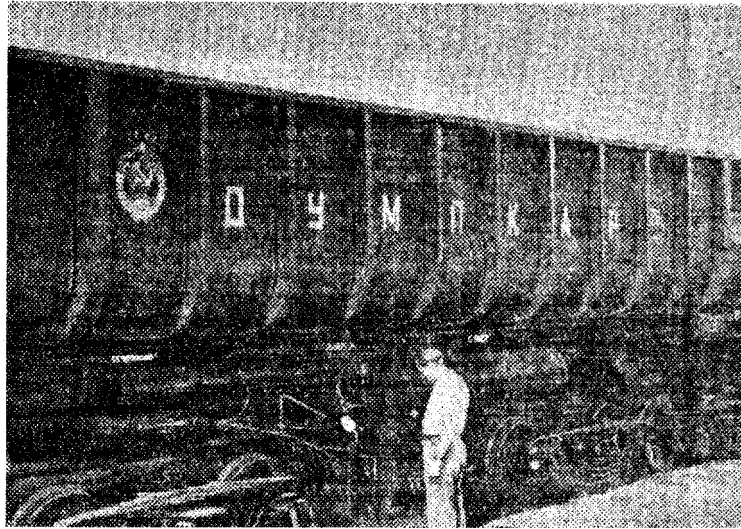


Figure G-15. Dumpcar with a capacity of 120 metric tons for transporting ore. This car was designed and produced by the Dneproderzhinsk Railroad Car Plant imeni Pravda.

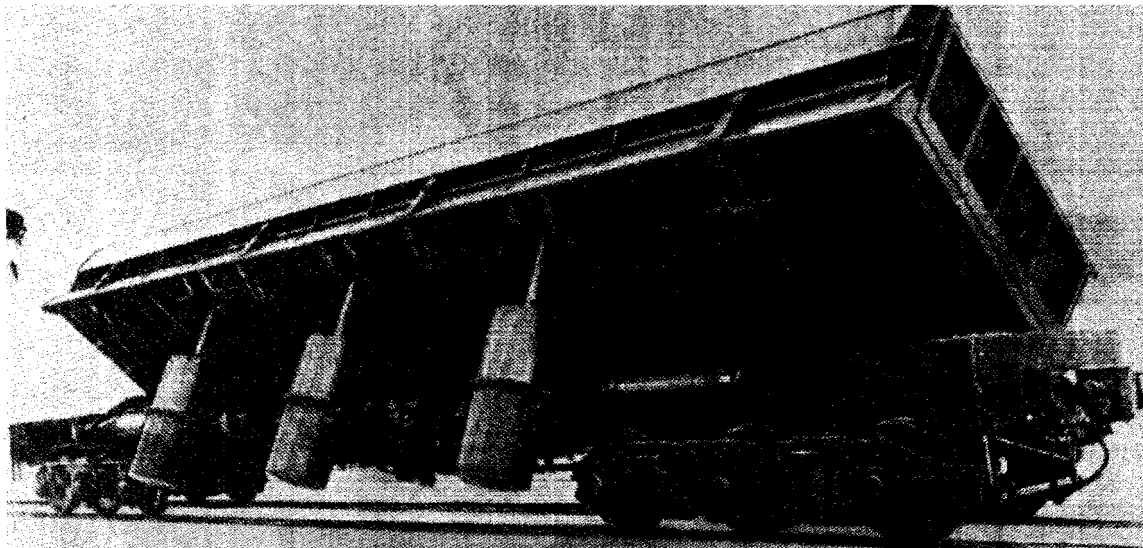
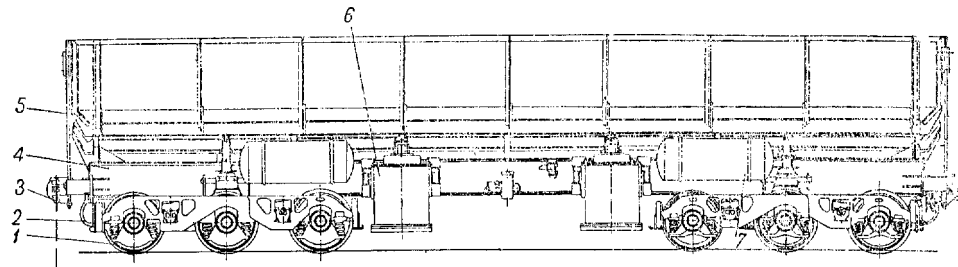


Figure G-16. Six-axle hydraulic dumpcar with a capacity of 90 metric tons. This car has been produced by the Kaliningrad Railroad Car Plant since 1956. The car also is built with capacities of 20, 35, 50, and 60 metric tons, and all models are equipped with roller bearings.

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- |                      |                            |
|----------------------|----------------------------|
| 1. Truck             | 5. Body                    |
| 2. Connecting hose   | 6. Dumping cylinder        |
| 3. Automatic coupler | 7. Tank for compressed air |
| 4. Lower frame       |                            |

Figure G-17. Main parts of a six-axle self-unloading car with a length of 47.5 feet and a capacity of 110 to 120 metric tons. This car, designed by the Kaliningrad Railroad Car Plant in 1959, has a maximum speed on mine railroads of 50 kilometers per hour.

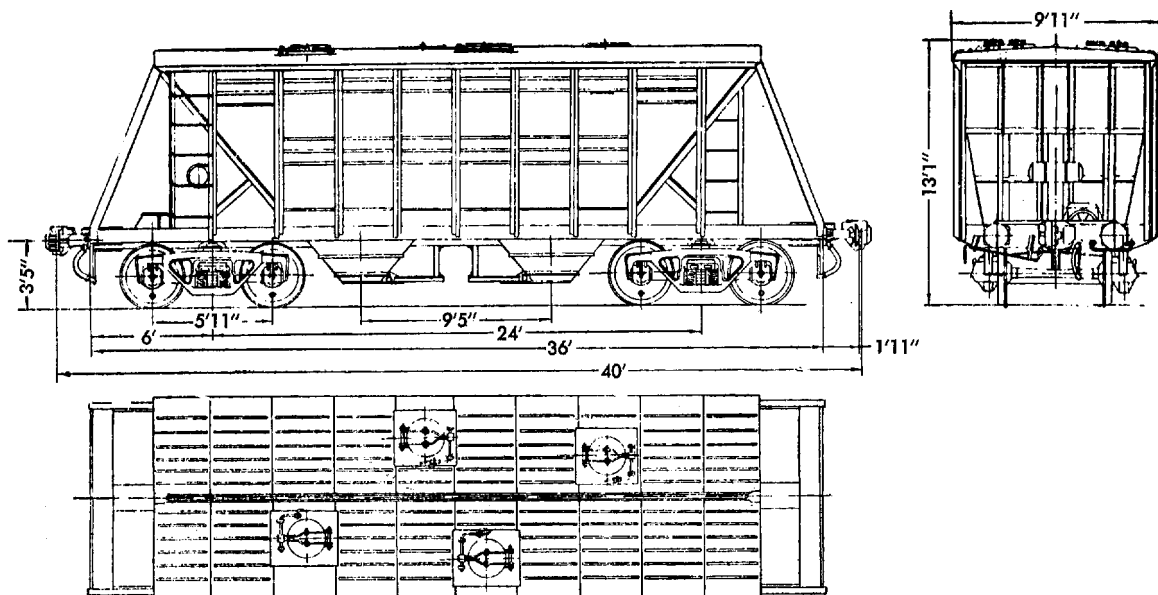
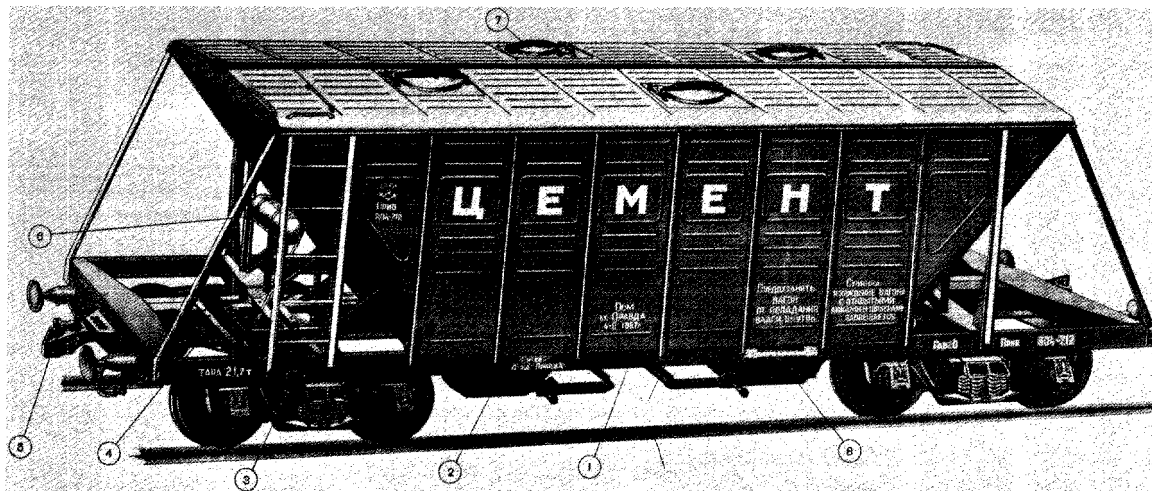


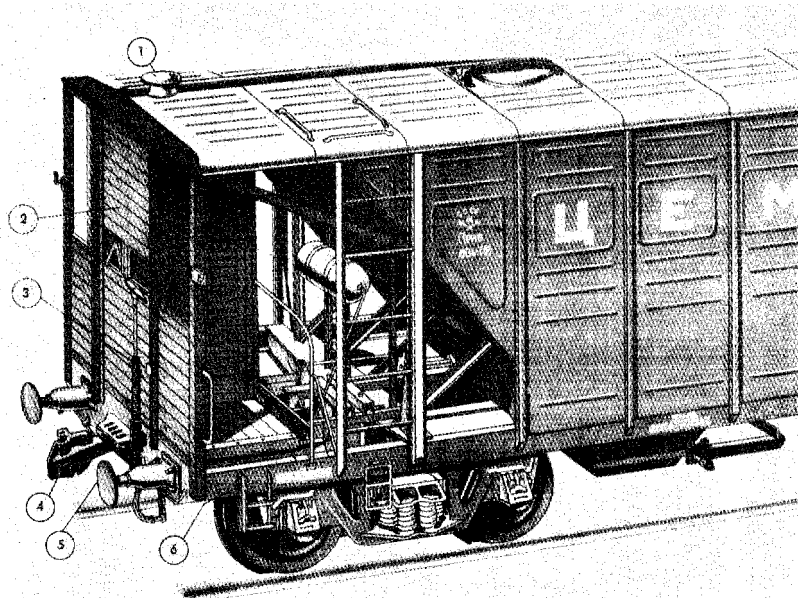
Figure G-18. Sketch of a four-axle gondola with a capacity of 60 metric tons for transporting cement

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- |                   |                      |
|-------------------|----------------------|
| 1. Frame          | 5. Automatic coupler |
| 2. Body           | 6. Reserve tank      |
| 3. Truck          | 7. Loading hatch     |
| 4. Brake cylinder | 8. Unloading hatch   |

Figure G-19. Main parts of a four-axle gondola with a capacity of 60 metric tons for transporting cement. This car has a steel-welded frame and an all-metal body and is loaded through four round hatches in the top that are equipped with waterproof lids. The lower part of the car consists of two double bunkers with four unloading hatches that are equipped with cast-steel gate valves with opening mechanisms.



- |                     |                      |
|---------------------|----------------------|
| 1. Sound detector   | 4. Automatic coupler |
| 2. Brakeman's cabin | 5. Buffer            |
| 3. Hand brake       | 6. Sill step         |

Figure G-20. Main parts of a four-axle gondola with a capacity of 60 metric tons for transporting cement (end view)

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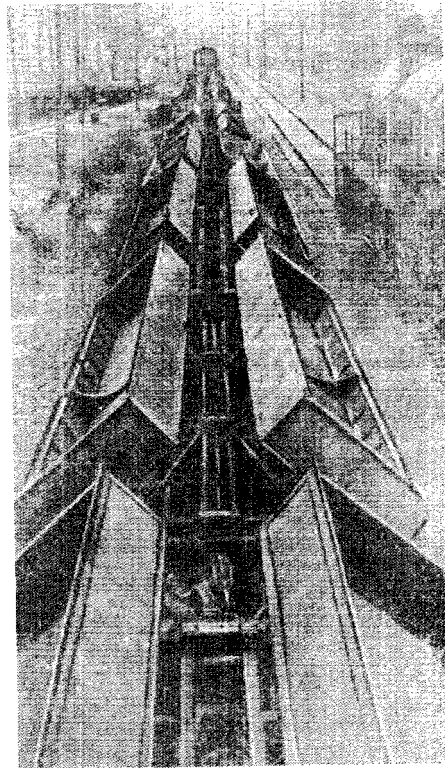


Figure G-23. Self-unloading cars used in connection with work on the railroad roadbed

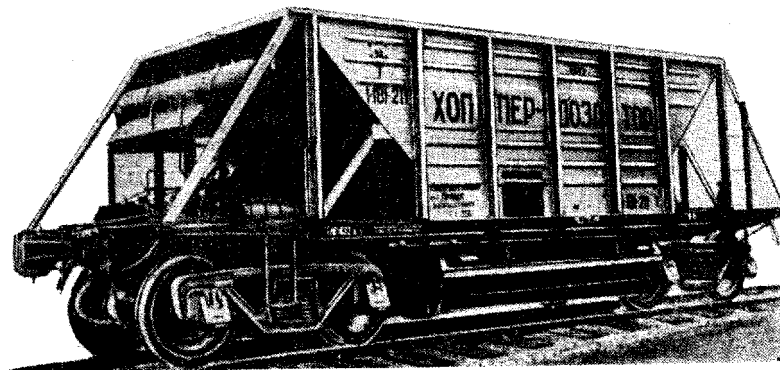


Figure G-24. Four-axle all-metal hopper car designed for transporting and mechanized unloading of all types of ballast used for railroad roadbeds. This car has a capacity of 60 metric tons and a body volume of 32 cubic meters. The inscription хоппер-дозатор means "measuring hopper." Cars of this type have been produced by the Dneprodzerzhinsk Railroad Car Plant since 1958.



### III. Flatcars and Transporters

Flatcars (платформы) (literally "platforms") are cars with low (or no) sides and are used for transporting heavy and long pieces of equipment, such as agricultural machinery, military equipment, automobiles, and large containers.

Transporters—also called deep-well or depressed-center cars—are special sideless flatcars having carrying capacities of as much as 250 tons and having six, eight, or more axles. They are used to transport very heavy and very large-dimension loads, such as transformers and rotors of generators and turbines.

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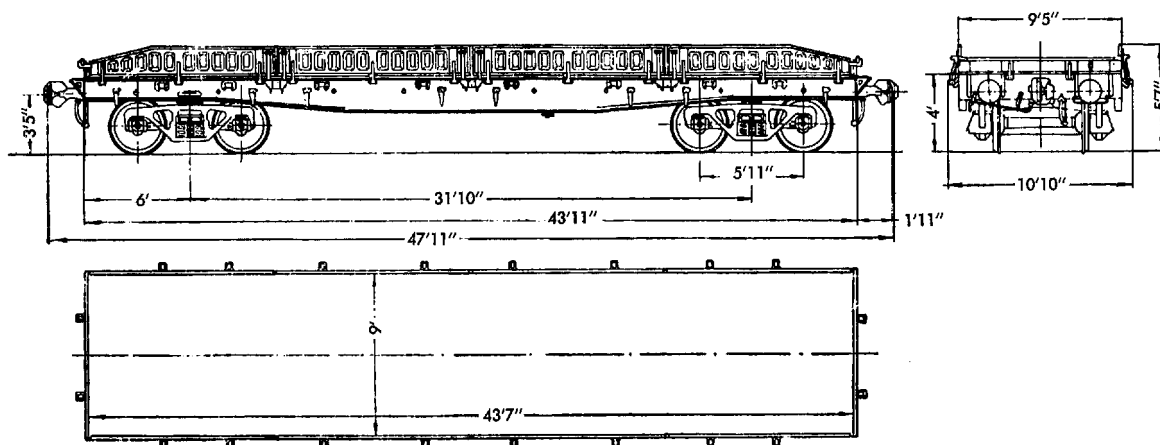
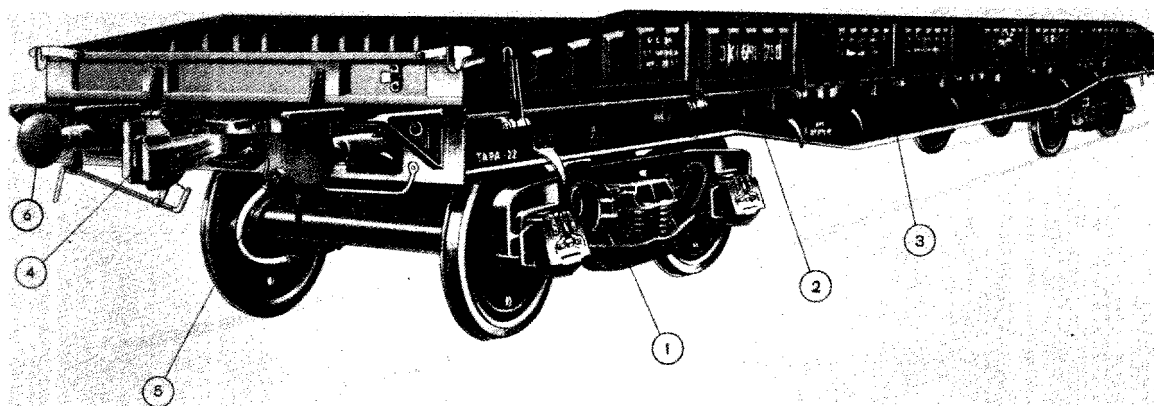


Figure F-1. Sketch of a four-axle flatcar with metal sides and a capacity of 60 metric tons



- |          |                       |
|----------|-----------------------|
| 1. Truck | 4. Automatic couplers |
| 2. Frame | 5. Airbrake hose      |
| 3. Side  | 6. Buffer             |

Figure F-2. Main parts of a four-axle flatcar with a capacity of 62 metric tons

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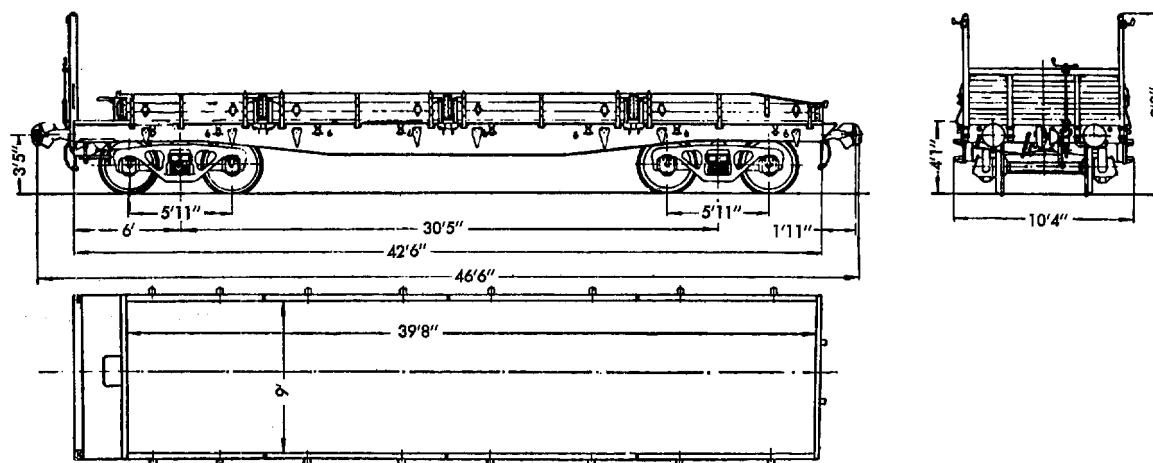
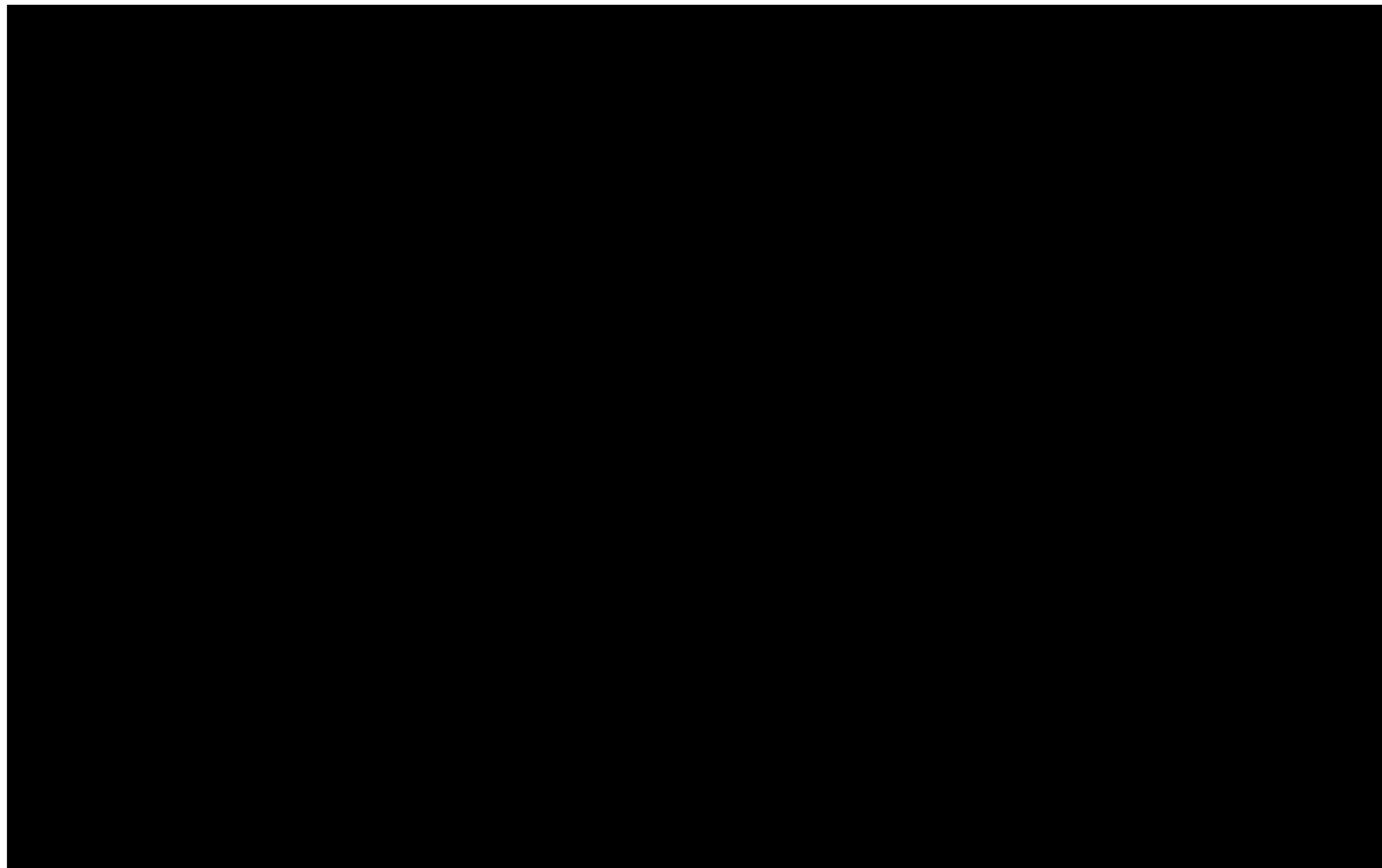


Figure F-4. Sketch of a four-axle flatcar with a capacity of 60 metric tons with a brakeman's platform

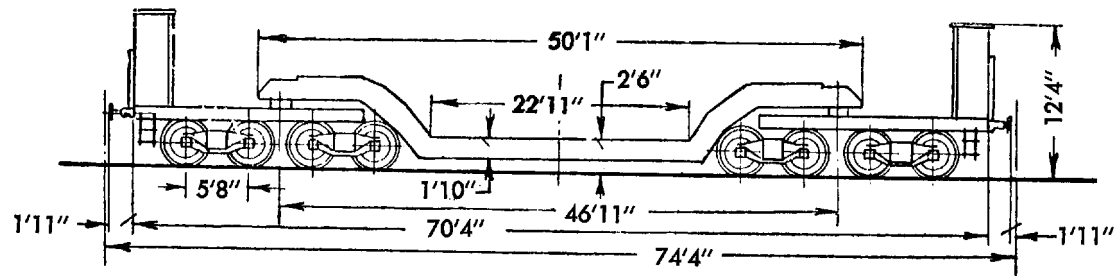


Figure F-5. Sketch of an eight-axle transporter with a capacity of 70 metric tons (1933 model). This car has a brakeman's cabin on each end and is equipped with both hand and pneumatic brakes.

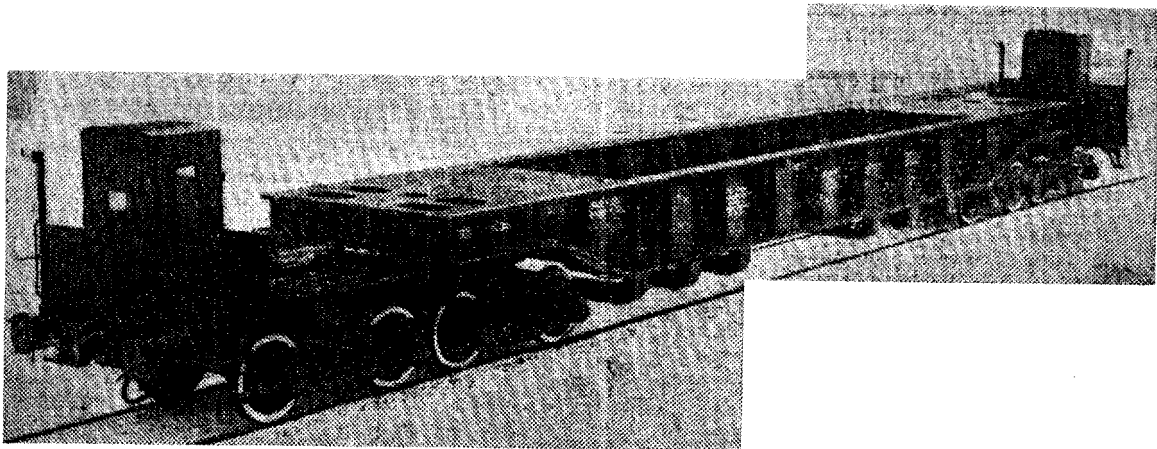


Figure F-6. Eight-axle transporter with a capacity of 105 metric tons. Designed by the Voroshilovgrad Steam Locomotive Building Plant, now called the Lugansk Diesel Locomotive Building Plant, this car is about 81 feet 11 inches long and has a brakeman's cabin on each end.

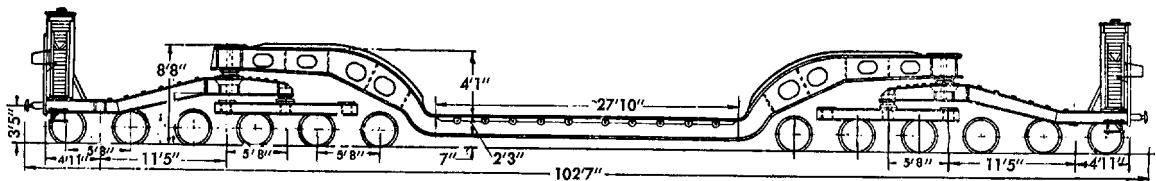


Figure F-7. Sketch of a twelve-axle transporter with a capacity of 120 metric tons (1932 model). This car has a brakeman's cabin on each end and is equipped with both hand and pneumatic brakes.

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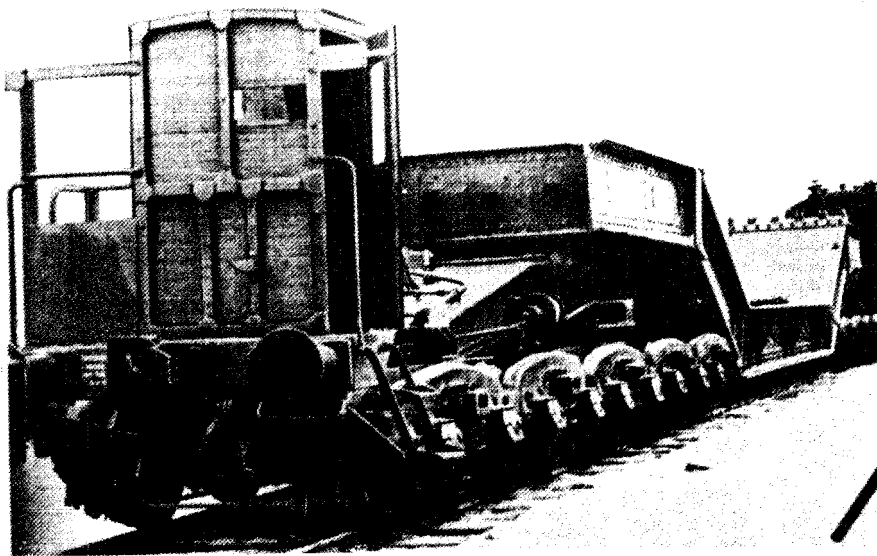


Figure F-8. Twenty-axle transporter with a capacity of 150 metric tons. This car is about 108 feet 4 inches long. Notice the brakeman's cabin on the front end. This photograph was made about 1955.

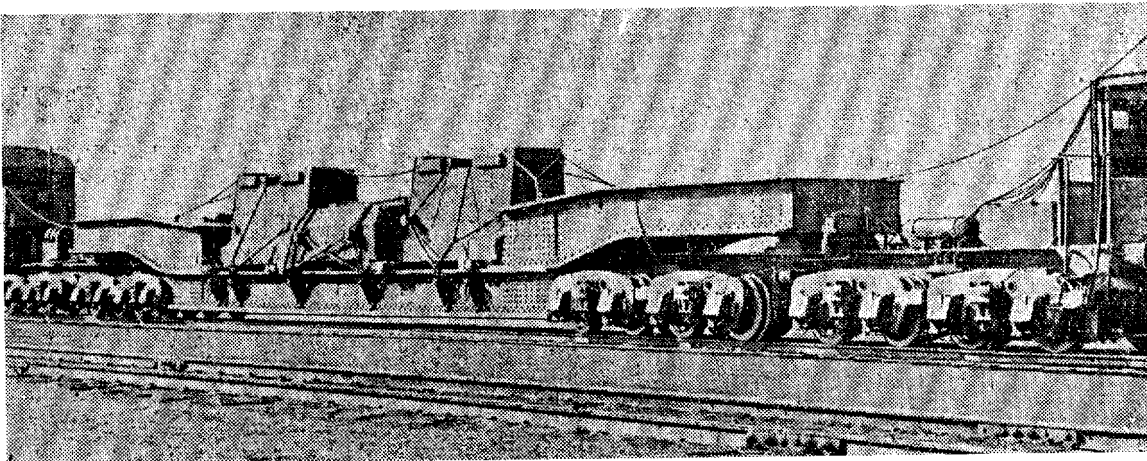


Figure F-9. Sixteen-axle transporter. Designed by the Voroshilovgrad Steam Locomotive Building Plant, now called the Lugansk Diesel Locomotive Building Plant, this car was built in 1955. It has a capacity of 180 metric tons and is 111 feet 6 inches long. It was designed to transport large, heavy freight on broad-gauge (1,524-mm) and standard-gauge (1,435-mm) railroads and has spare wheel pairs and special automatic couplers to permit use on the two gauges. It can travel at speeds as high as 80 kilometers per hour and has a maximum curve radius of 393 feet 8 inches.

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#### IV. Tank Cars

Tank cars (цистерны) (literally "cisterns") have a body consisting of a metallic tank permanently fastened to the frame of the car. Tank cars generally are used for transporting liquids such as oil, gasoline, alcohol, milk, and compressed gases. These products require a large number of different types of tank cars, the tanks of which may need special linings to prevent their destruction or the contamination of the cargo. Some tanks are made of aluminum or nickel steel to protect them from corrosive action by the contents. Tanks for transporting liquefied gases such as oxygen, chlorine, and butane are manufactured from thicker metal sheets than are those of the ordinary tank car. The greater thickness is required because the liquefied gases are transported at high pressures. All tanks for transporting gases have exterior insulation that protects the contents from the heat of the sun.

Transporting liquefied gases as liquids generally takes place in special tank cars belonging to the shipper or receiver. Each such tank car is designed for the shipment of a definite gas, and its utilization for other liquefied gases is forbidden.

Transporting acids such as sulfuric, nitric, and hydrochloric requires special tank cars, the tanks of which are distinguished by their thick walls, their volume, the location of the dome, and the presence of special internal coatings that prevent damage to the wall of the tank and preserve the quality of the contents. If two tank cars had the same carrying capacity, the volume of the tank of the car that carried acids would be smaller than the tank of an oil car because the specific gravity of acid is greater than that of oil.

In addition to tank cars (as well as other railroad cars) owned by the Ministry of Railroads, cars used on Soviet mainline railroads may be owned by a state enterprise or leased from the Ministry of Railroads. These cars do not carry the seal of the Ministry of Railroads, and usually they have a special serial number (consisting of a letter followed by not more than five digits). These cars are usually "signboarded"—that is, they carry an inscription giving special instructions to return the car to a particular station and factory. (For an example of a "signboard," see Figure T-20, a photograph of a railroad car used for transporting ammonia.)

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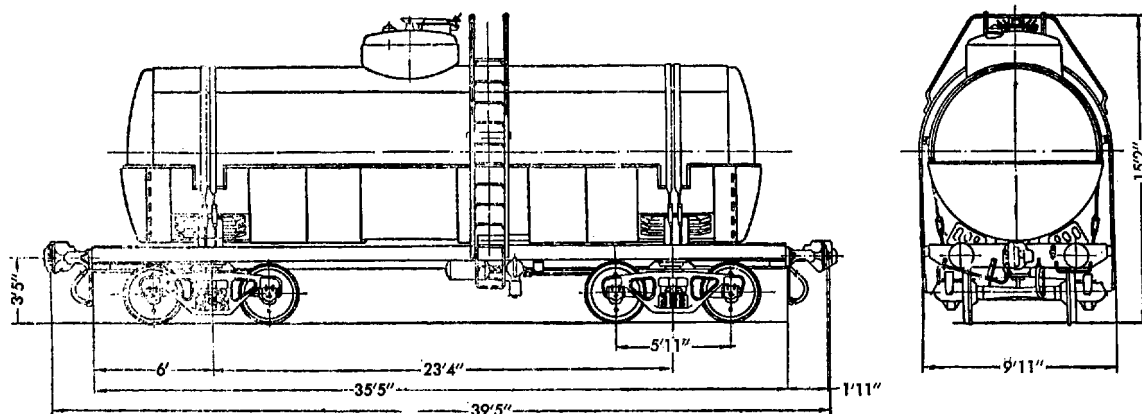
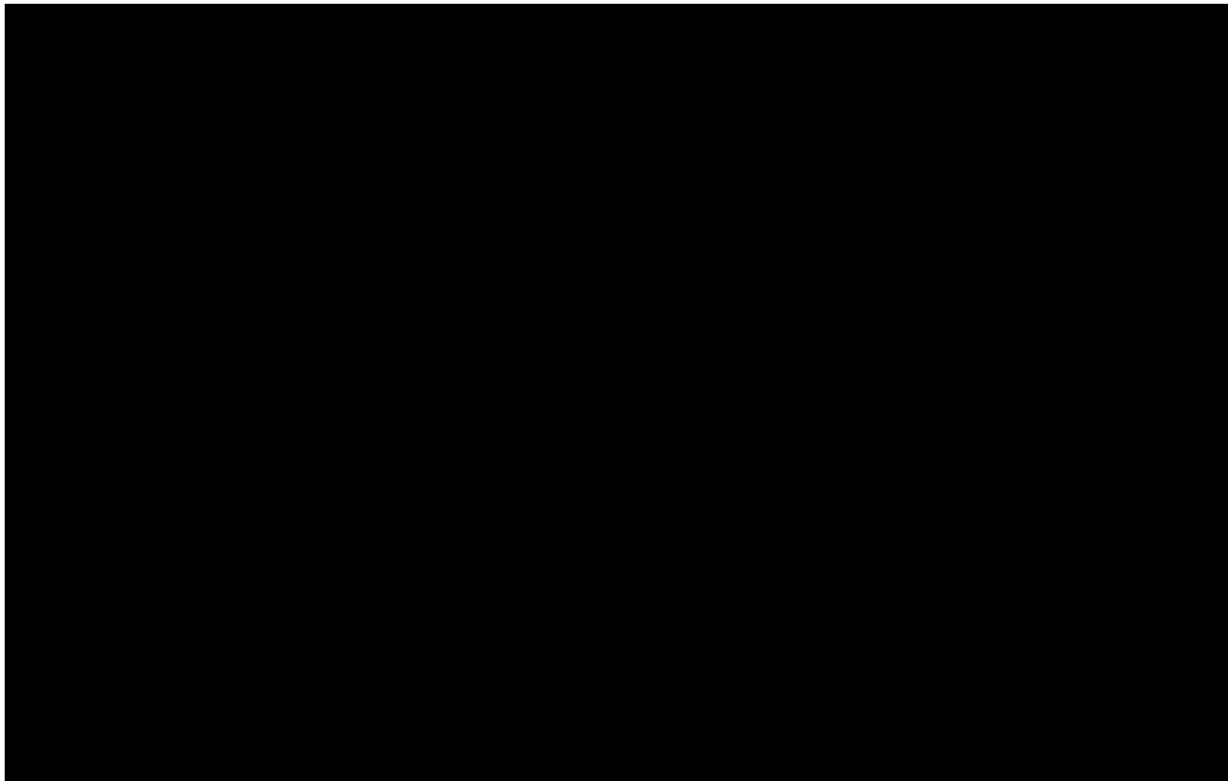


Figure T-2. Sketch of a four-axle tank car for transporting viscous oil products. This car has a volume of 50 cubic meters and carries heating equipment.

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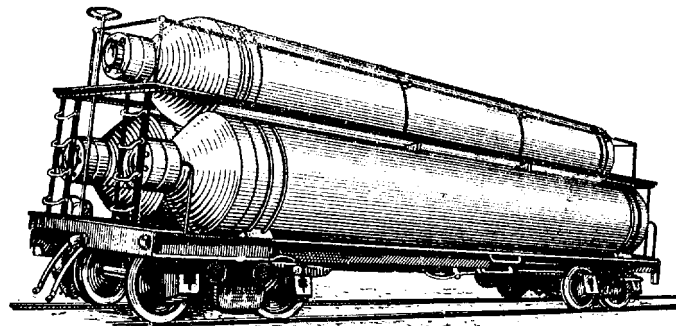


Figure T-5. Sketch of a four-axle tank car with a volume of 70 cubic meters for transporting liquefied gases under a pressure of 380 atmospheres. The tanks on this car are made by seamless forging, and their sides are from 20 to 30 mm thick. Manufacture of such tanks requires special heavy forge-pressing equipment.

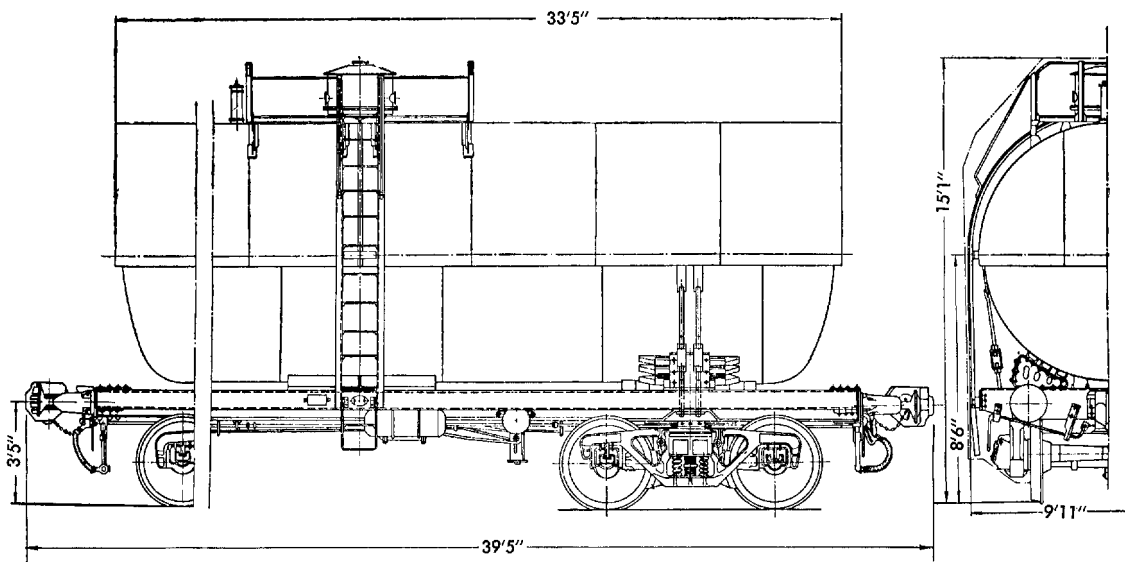


Figure T-6. Sketch of a four-axle tank car with a capacity of 50 tons for transporting liquefied gases. This car has a metal cover over the top of the tank to protect the contents from the rays of the sun. The end view shows that the metal covering conforms to the shape of the tank. The car, designed by the Zhdanov Plant imeni Il'ich, has a volume of 52.7 cubic meters.

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Figure T-7. Four-axle tank car with a volume of 60 cubic meters\* for the transport of liquefied gases, including oxygen, chlorine, and butane. The tank, which is 33 feet 6 inches long, is made of sheet metal of greater thickness than that of the usual tank car. The greater thickness is required because the liquefied gases are transported at high pressure—8 to 12 atmospheres. A tank of this type is manufactured from four longitudinal sheets, 16 mm thick, which have been butt-welded. The tank heads, 26 mm thick, are butt-welded to the cylindrical part. The domes of tank cars for the transport of gases are much smaller than the domes of cars for transporting oil or alcohol. On a four-axle car the height of the dome is 10 inches, and the diameter is 19 inches.

All tanks of tank cars for transporting gases have exterior insulation that protects the contents from the heat of the sun. This insulation is vitreous—*steklovaty*—60 mm thick, with a covering of sheet steel.

\* Generally only 54 cubic meters of this volume are used for liquefied gases.

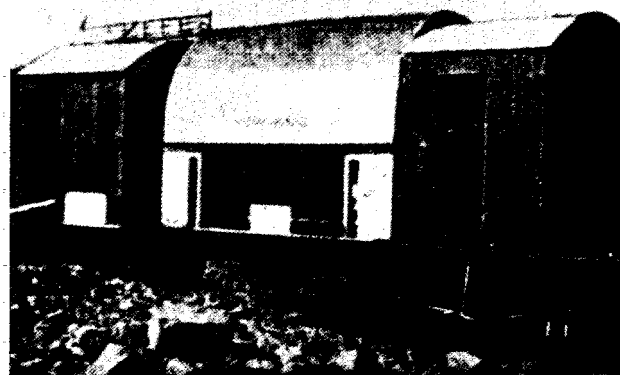


Figure T-8. Two-axle car for transporting liquid oxygen (LOX). The date of the photograph is unknown, but it is earlier than 1959. The car probably is an early postwar model.

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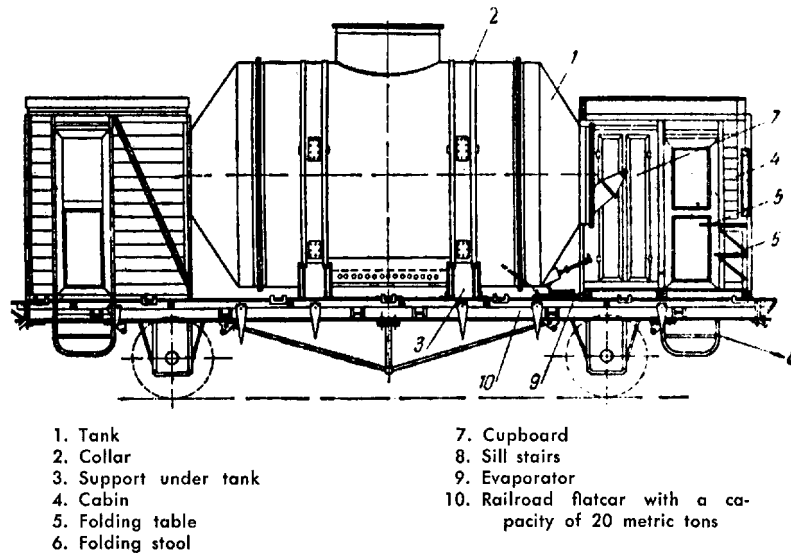


Figure T-9. Main parts of a two-axle tank car for transporting liquid oxygen (LOX). A similar model, but without the cabins on the ends, was produced by the First Moscow Welding Plant some time before 1946.

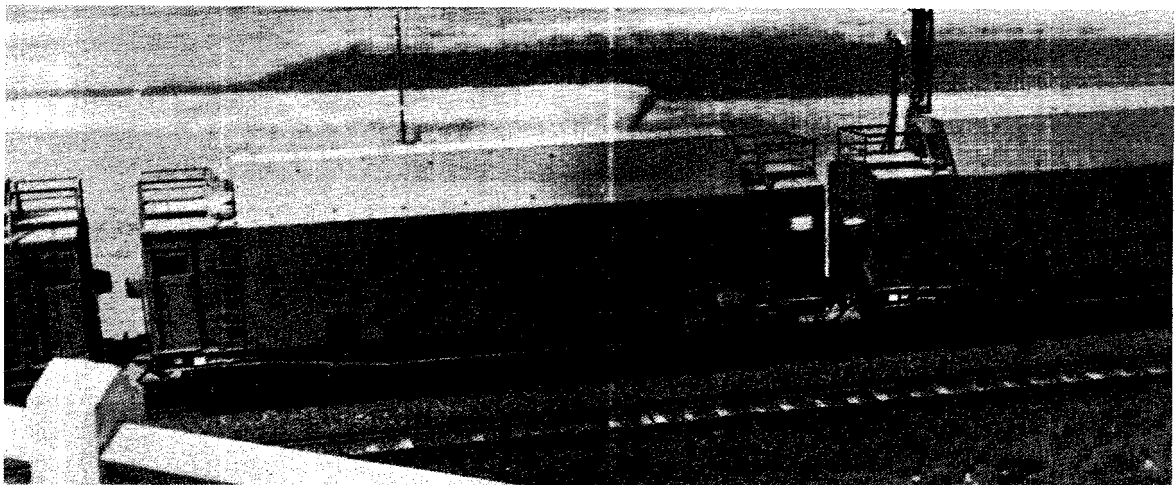


Figure T-10. Four-axle tank car for transporting liquid oxygen (LOX). Typical characteristics of this type of car are the cabins on the ends, which are larger than the usual brakeman's cabins, and the ladders leading to the roof. Frost or light-colored vapor on or near the vents at the ends of the roof generally indicates that the car is carrying gases at extremely low temperatures.

The inscription on the side of the car, *осторожно, не спускать с горки, не толкать*, means "caution," "do not hump," "do not jar."

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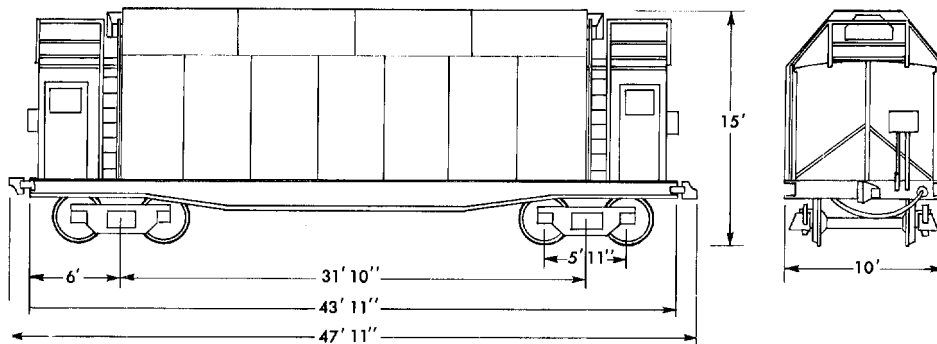


Figure T-11. Sketch of a four-axle tank car for transporting liquid oxygen (LOX). Notice the beveled roof in the end view.

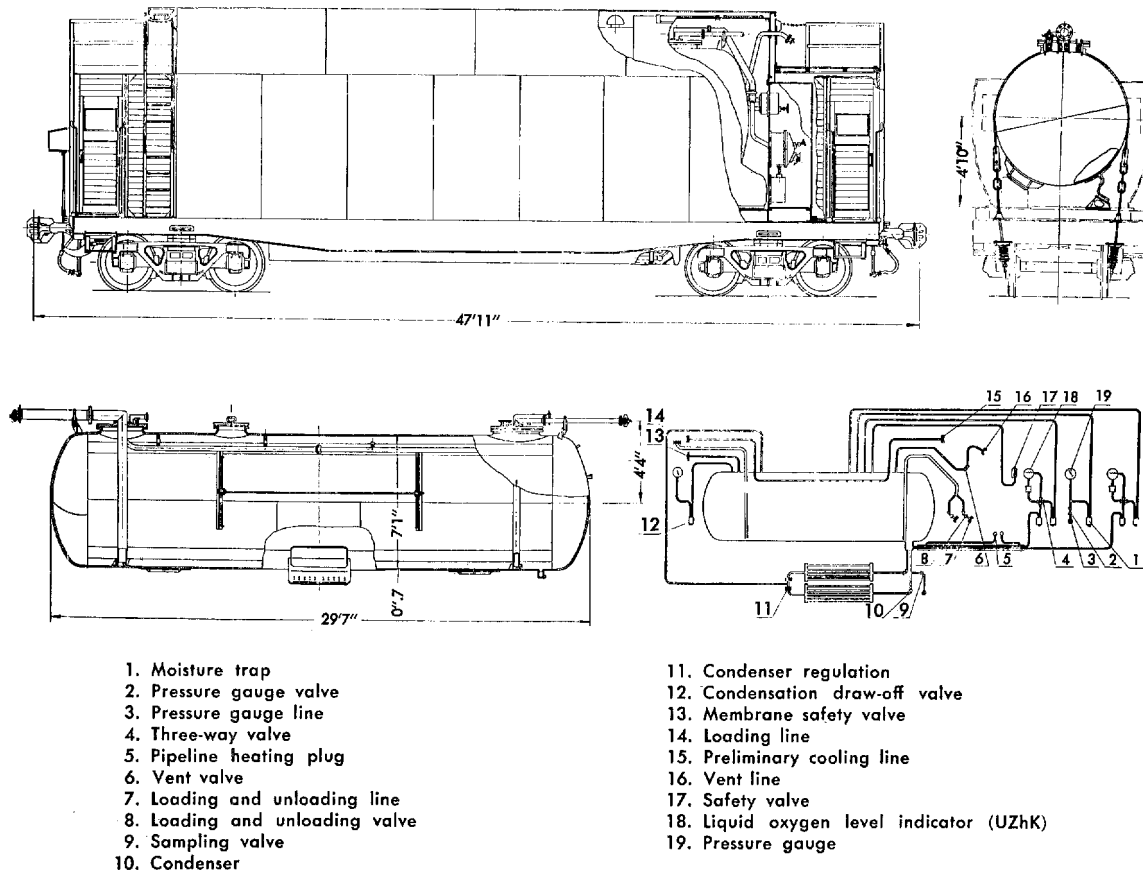


Figure T-12. Main parts of a four-axle tank car with a capacity of 32 metric tons for transporting liquid oxygen (LOX). When filled, this car has a total weight of 79 metric tons, and the tank has a capacity of 32.1 cubic meters. The pressure in the tank is atmospheric except when the tank is being loaded or unloaded, at which time the pressure is not more than 2.5 kilograms per square centimeter. Losses of liquid oxygen because of evaporation are about 65 kilograms per hour.

The drawing on the upper right shows the fastening of the tank to the car. The drawing on the lower left illustrates the tank assembly, and the one on the lower right the details of the tank design.

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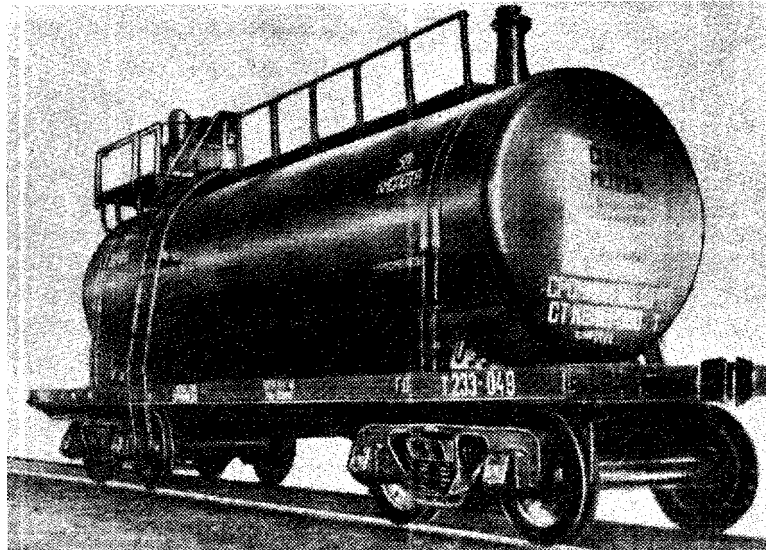


Figure T-13. Four-axle tank car for transporting melange (a mixture of sulfuric and nitric acids). Cars designed for transporting melange or sulfuric acid do not have gravity flow discharge valves and are unloaded through the dome. To empty the tank easily and completely, the dome has a relatively low side, and the tank is installed on the frame of the car with its axis at a slight angle to the horizontal. Safety valves, intake valves, and the equipment for unloading the tank are located on the dome. At one end the acid tank car has both exterior and interior ladders and a wooden platform with railings around the dome. The other end of the tank has an outlet pipe, through which the interior of the tank may be cleaned or degasified.

Tank cars for transporting oleum (fuming sulfuric acid) have the same design as cars for melange or sulfuric acid. The distinguishing characteristic of oleum tank cars is the external insulation of the tank, which prevents the acid from congealing. The insulating material surrounds the tank for a thickness of 200 mm and the dome for a thickness of 150 mm.

The inscription on the side of the car, 50Т КИСЛОТА, means "50 tons of acid," and the inscription at the end of the car, ОПАСНО МЕЛАНЖ, means "danger, melange."

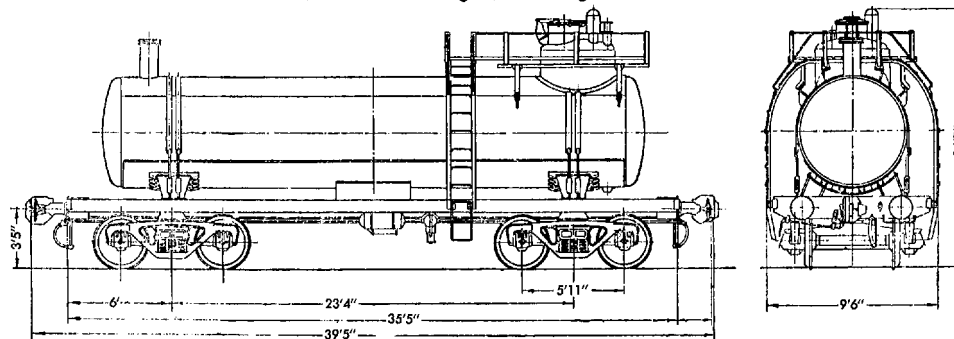


Figure T-14. Sketch of a four-axle tank car with a volume of 26 cubic meters for transporting melange or sulfuric acid.

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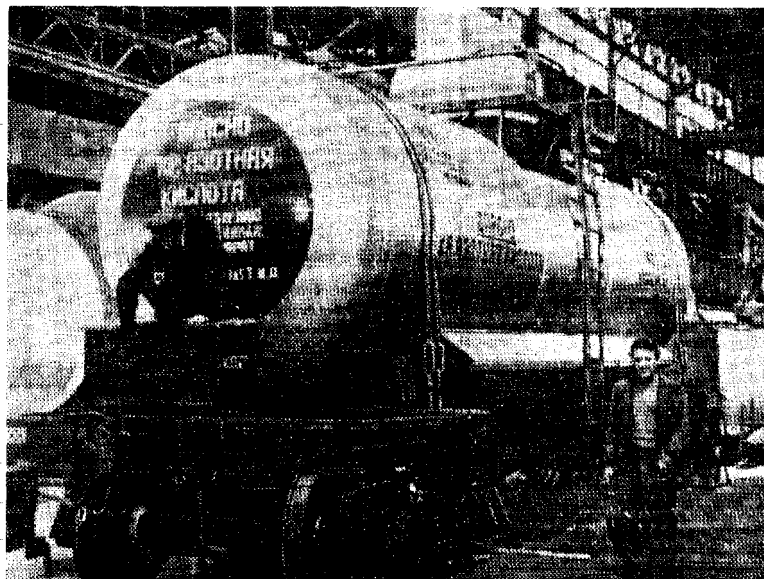
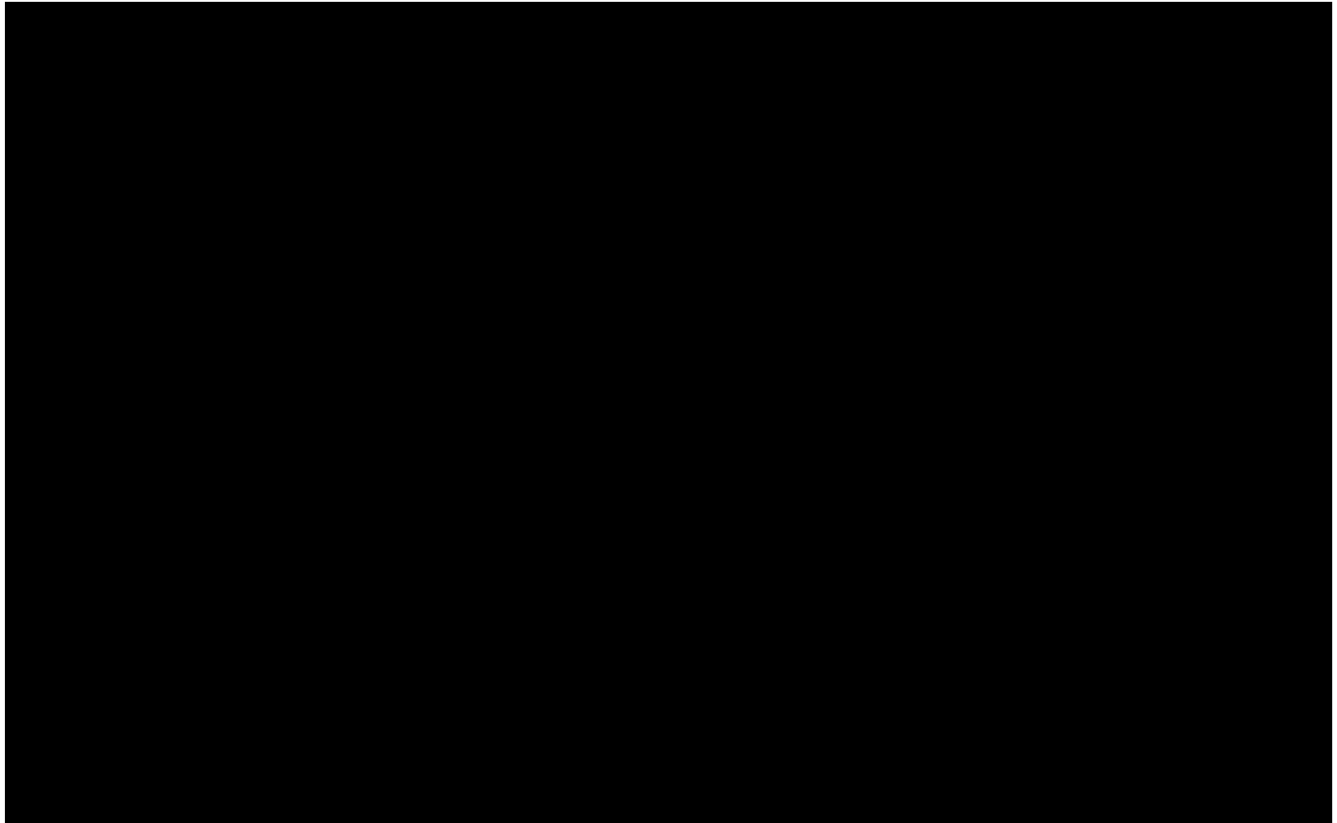


Figure T-16. Four-axle tank car for transporting concentrated nitric acid, shown in the producing plant at Zhdanov. Soviet tank cars of this type having a capacity of 50 tons are produced with tanks made of aluminum sheets 20 mm thick. The cylindrical part of the tank consists of five sections butt-welded together. The inscription опасно кр. азотная кислота means "danger, concentrated nitric acid."

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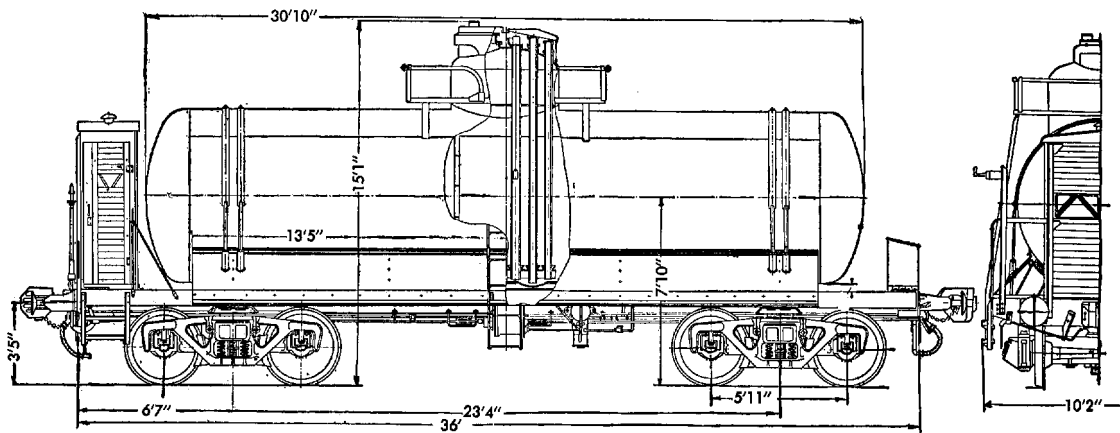


Figure T-17. Sketch of a four-axle tank car with a capacity of 50 metric tons for transporting concentrated nitric acid (1952 model). This car, which is equipped with a brakeman's cabin, was designed by the Bryansk Steam Locomotive Building Plant, now called the Bryansk Machine Building Plant.

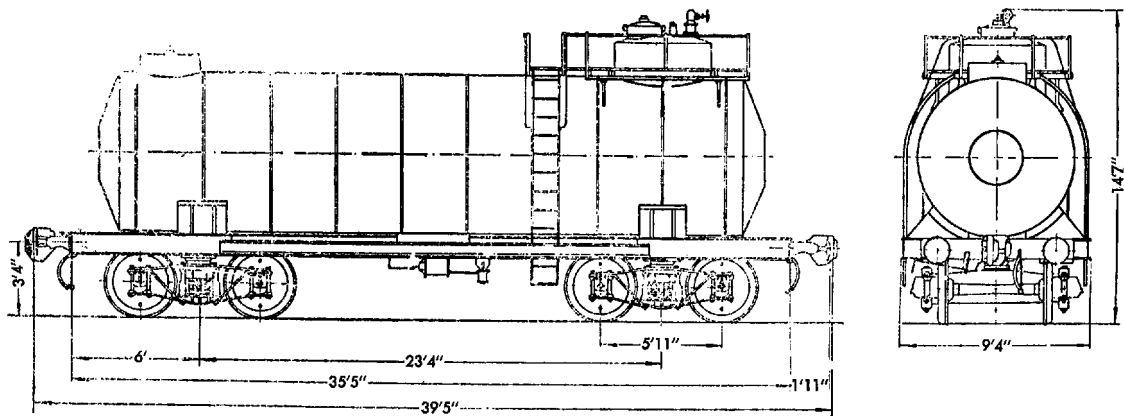


Figure T-18. Sketch of a four-axle tank car with a volume of 26 cubic meters for transporting fuming sulfuric acid.

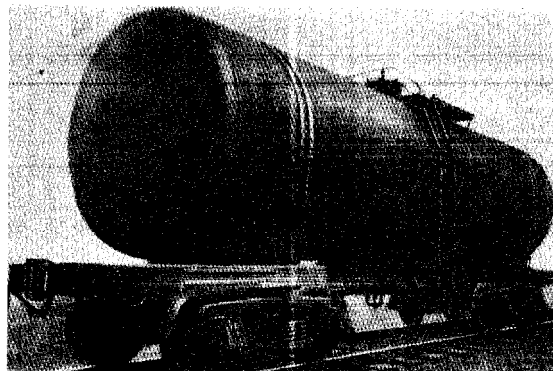


Figure T-19. Four-axle tank car with a capacity of 60 metric tons for transporting oil, gasoline, or other petroleum products. This car, 39 feet 5 inches long, is equipped with universal discharge equipment.

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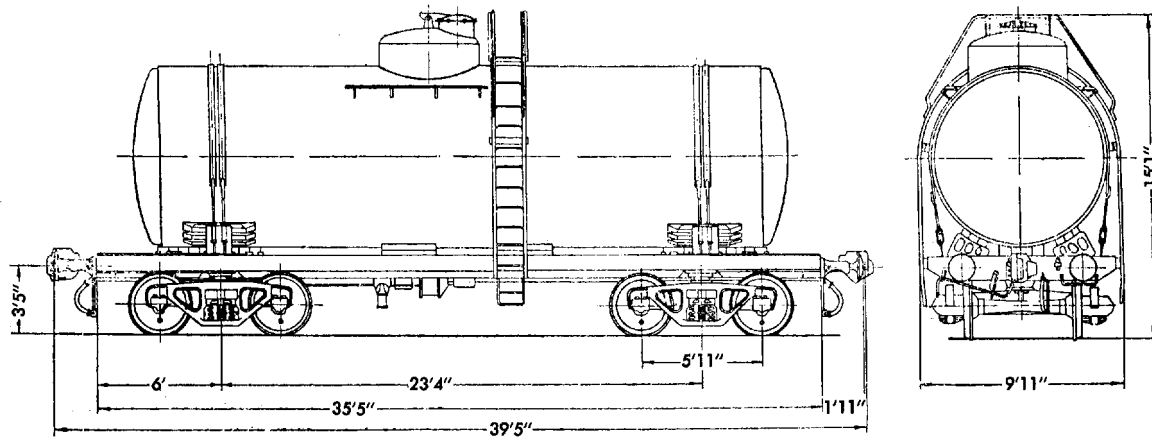


Figure T-20. Sketch of a four-axle tank car of welded construction with a volume of 50 cubic meters.

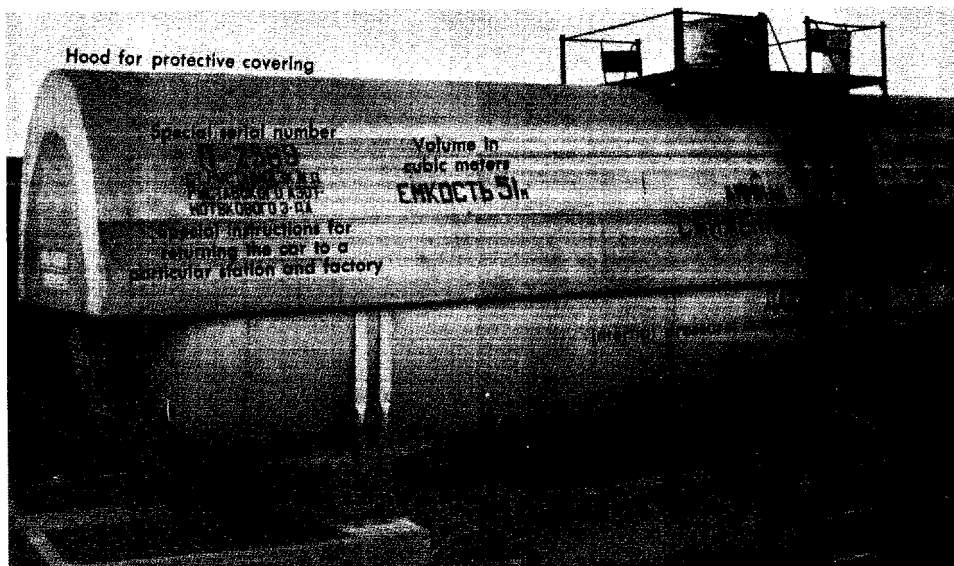


Figure T-21. Four-axle tank car for transporting ammonia. This car is painted green with a yellow circle on the end of the car and with a yellow stripe along the length of the side. Barely visible on the running board is a notation showing the place and date of manufacture, DVZ im. gaz. PRAVDA 22 IV 55 (Dneprodzerzhinsk Railroad Car Building Plant imeni newspaper Pravda 22 April 55). The special set of instructions shown on the left side of the car is an example of a "signboard." The inscriptions аммиак ядовито and сжиженный газ mean "ammonia, poisonous" and "liquefied gas."

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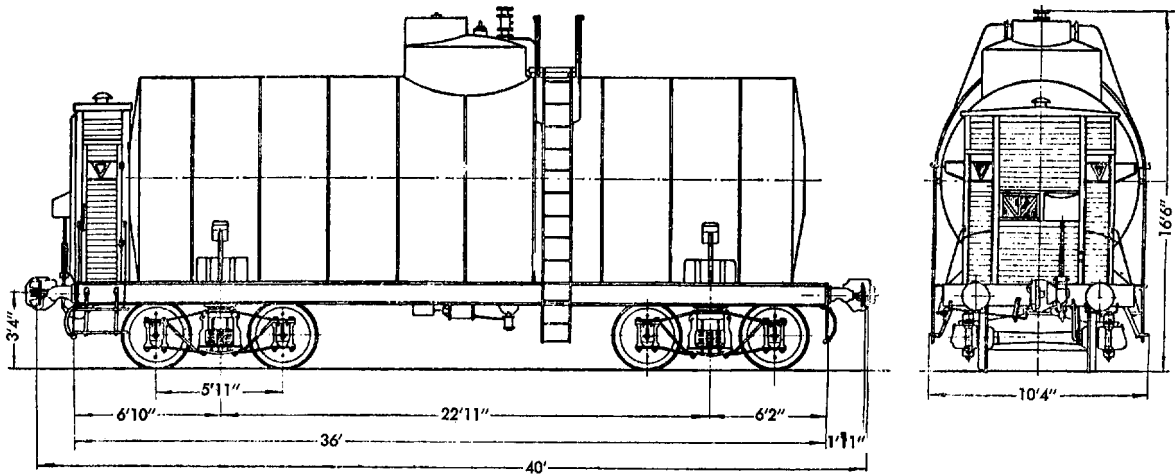
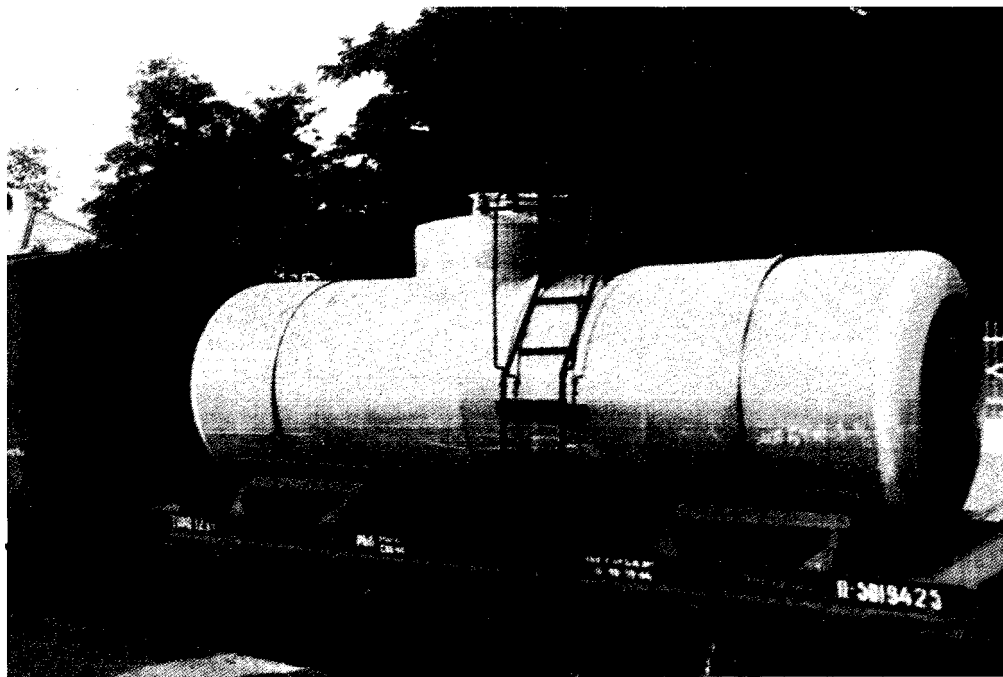


Figure T-22. Sketch of a four-axle tank car with a volume of 50 cubic meters for transporting ammonia.



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Figure T-23. Two-axle tank car for transporting molasses.

The inscription 25T на точная (right) means "25 tons of molasses." Notice the dark circle within the light-colored band on the end of the tank.

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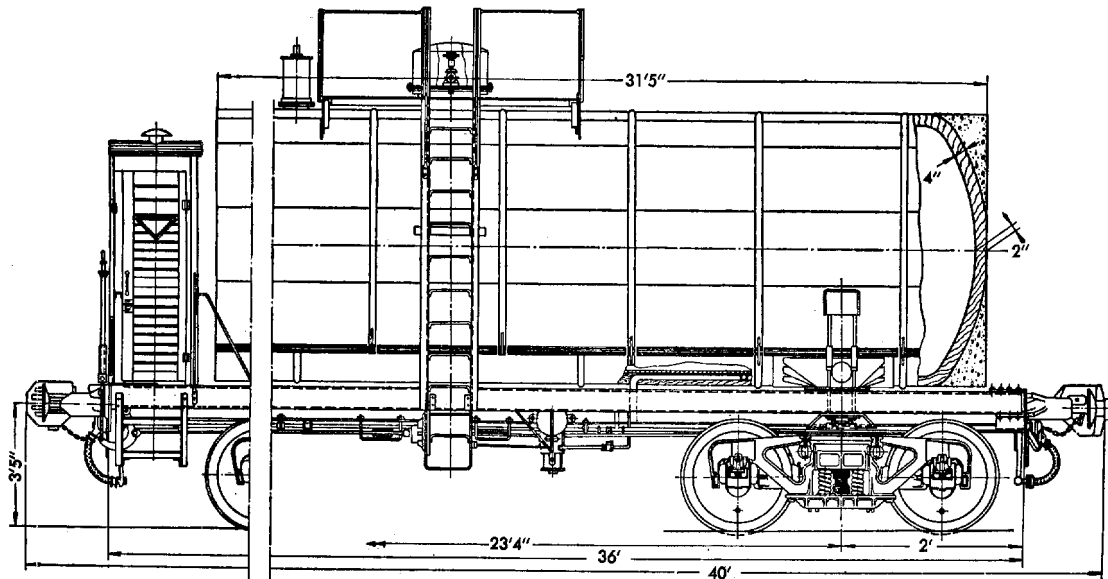


Figure T-24. Sketch of a four-axle tank car with a capacity of 40 metric tons for transporting chlorine. This car, a 1952 model, has a hand brake and a brakeman's cabin. Both the frame and the tank of the car, which was designed by the Zhdanov Plant imeni Il'ich, are of welded construction.

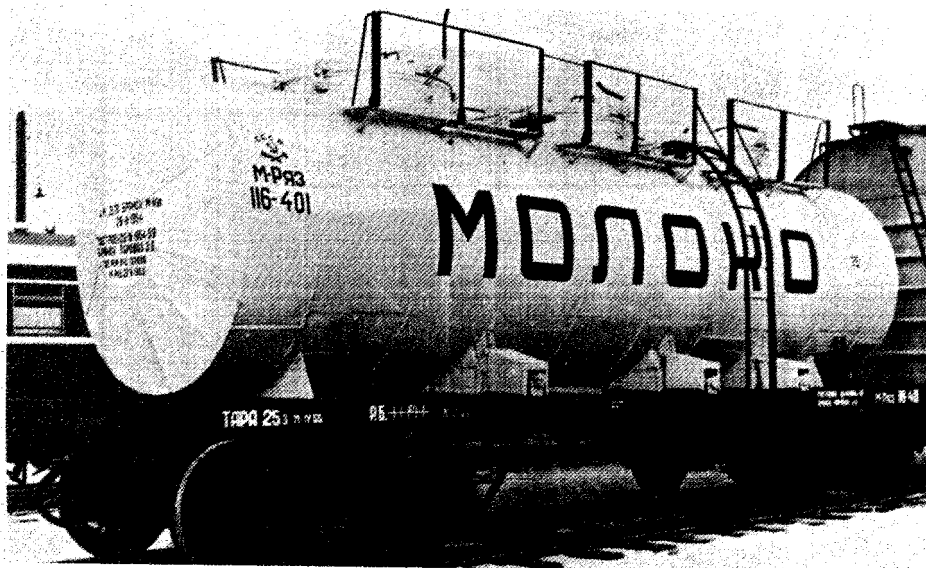


Figure T-25. Four-axle tank car for transporting milk. The word МОЛОКО that appears on the side of the car means "milk." The letters may vary in size on other milk tank cars. Cars of this type are easily distinguished from other Soviet tank cars by three domes on the top of the car. The lettering on the end of the tank states that the car was produced by the Bryansk Steam Locomotive Building Plant, now called the Bryansk Machine Building Plant, in April 1954.

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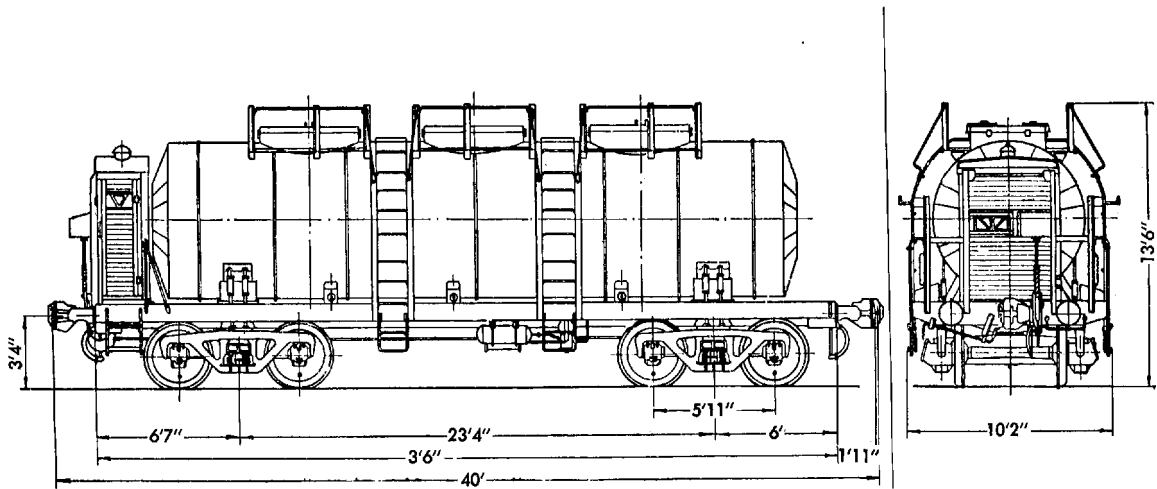
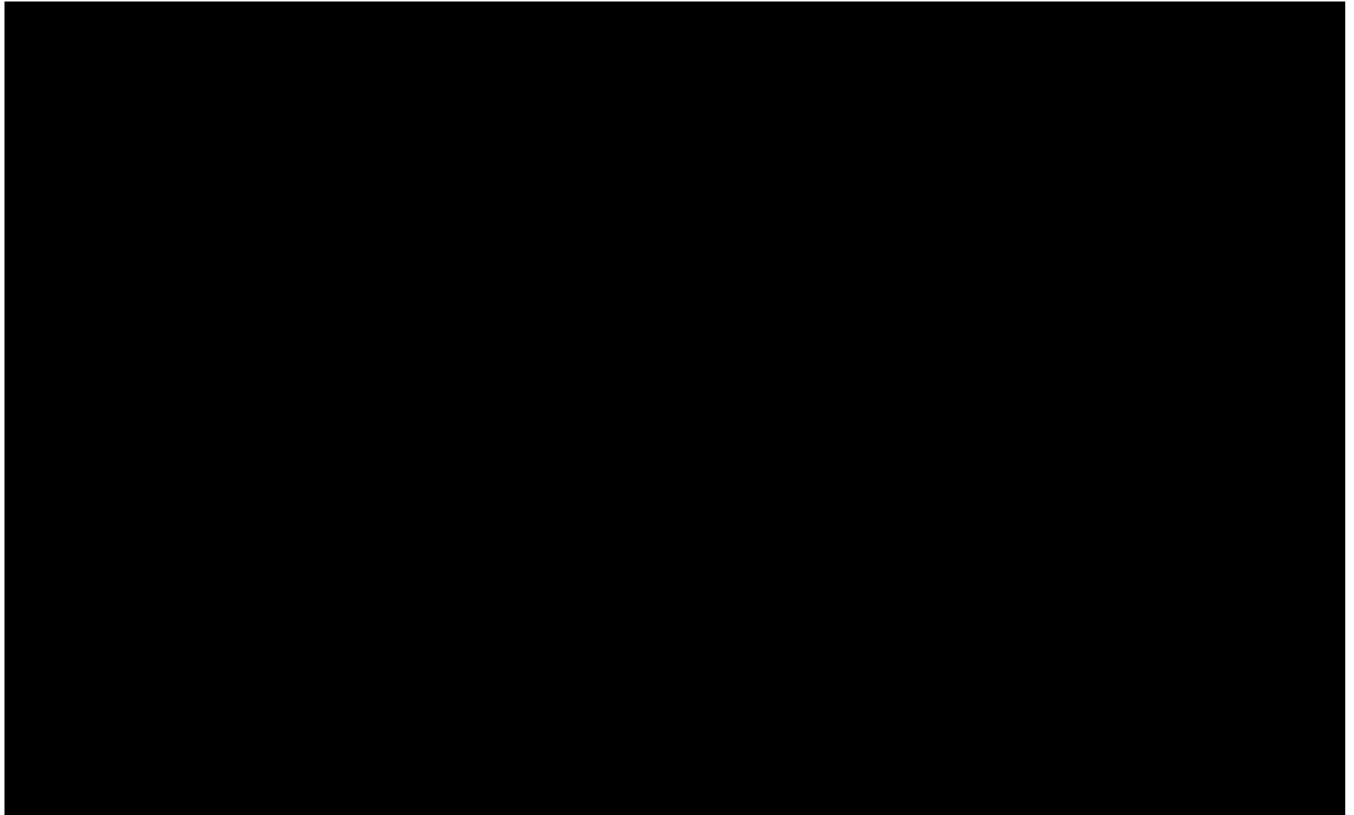


Figure T-26. Sketch of a four-axle tank car with a volume of 25.2 cubic meters for transporting milk (1953 model). This car was designed by the Bryansk Steam Locomotive Building Plant, now called the Bryansk Machine Building Plant.

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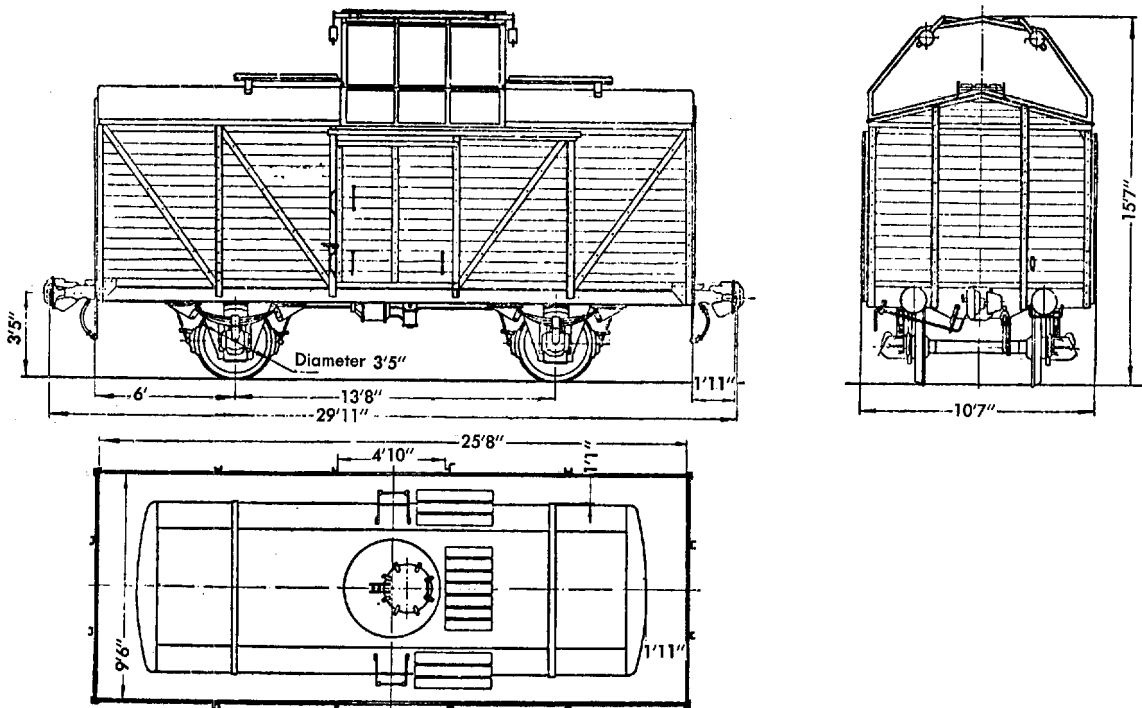


Figure T-28. Sketch of a two-axle tank car with a volume of 25 cubic meters for transporting alcohol. The tank is completely surrounded by the exterior body of the car in order to protect the contents from the heat of the sun. The covering over the dome of the tank is slightly off center, although the dome itself is centered in relation to the tank.

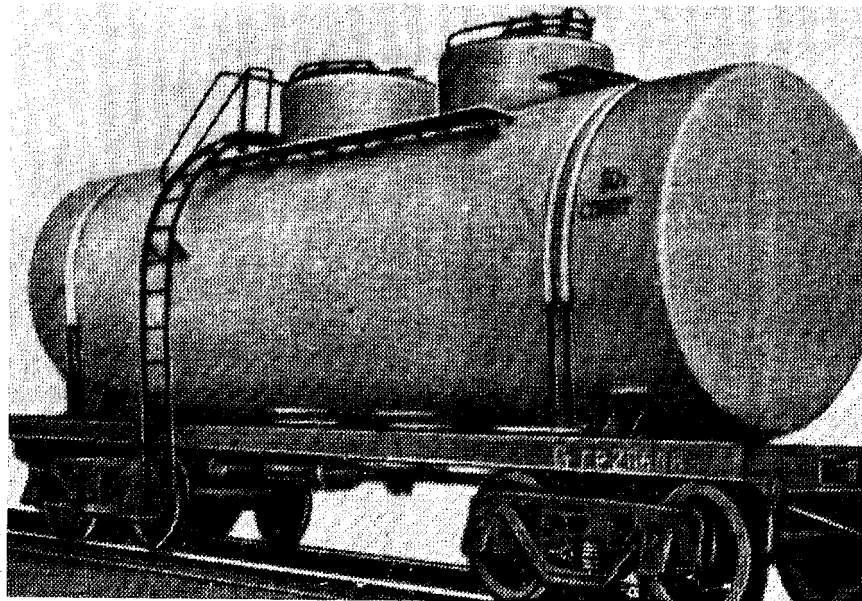


Figure T-29. Four-axle tank car with a capacity of 50 metric tons for transporting alcohol. The inscription 50т спирт means "50 tons of spirit"—that is, alcohol.

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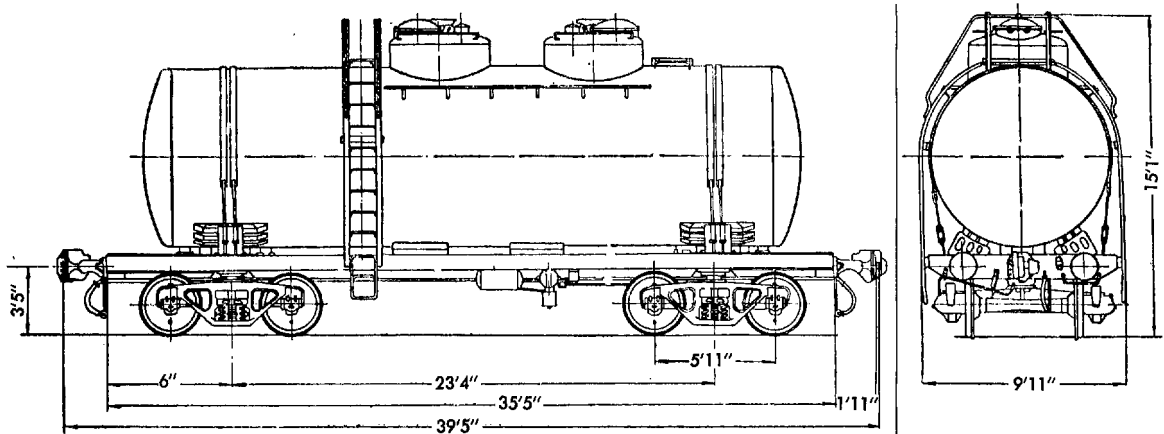


Figure T-30. Sketch of a four-axle tank car with a volume of 50 cubic meters for transporting alcohol. A distinguishing characteristic of this car is the two-dome arrangement.

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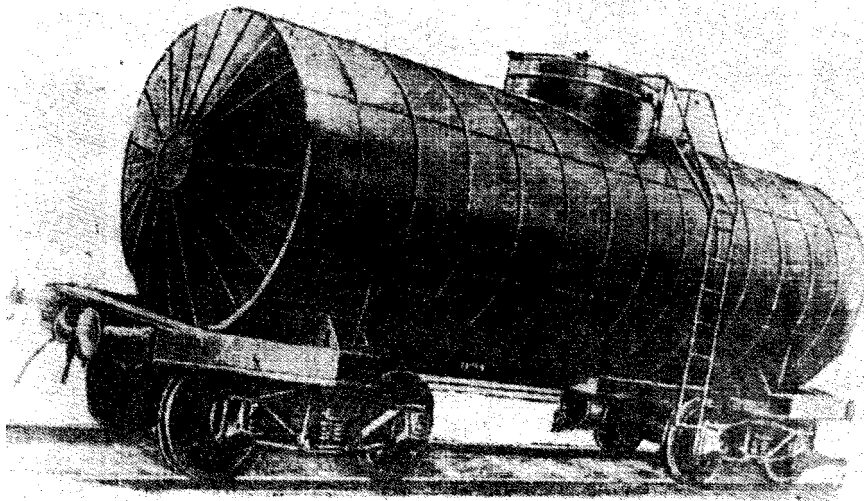


Figure T-32. Insulated tank car of prewar (1934) design for transporting hot liquid bitumen.



Figure T-33. Four-axle tank cars being loaded with butane. The top of the tank is covered to protect it from the heat of the sun. The inscription at the top on the end of the tank, с горки не спускать, бутан, огнеопасно, means "do not hump," "butane," "flammable." At the bottom on the end of the tank is an inscription identifying the Zhdanov Plant imeni Il'ich as the manufacturer of the car. The inscription on the side of the tank, XXII СЪЕЗДУ КПСС!, is in honor of the 22d Session of the Communist Party of the USSR.

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#### V. Refrigerator and Heater Cars and Trains

Refrigerator and heater cars and trains (called "isothermal" in the USSR [изотермические]) are designed to transport perishable freight such as meat, fish, milk, and fruit. The bodies of these cars are insulated to minimize temperature change and are equipped with cooling, heating, and ventilating instruments. Soviet railroads often use isothermal sections or "trains" composed of from 3 to 23 railroad cars coupled together as a unit, in which the power equipment used to cool or heat the entire section or train is contained in special cars. (Refrigerator cars in most other countries usually are cooled or heated by equipment installed in the individual refrigerator car.) The Soviet isothermal sections or trains generally are painted with light-colored paint and usually can be distinguished by the accordion hose connections between the individual cars.

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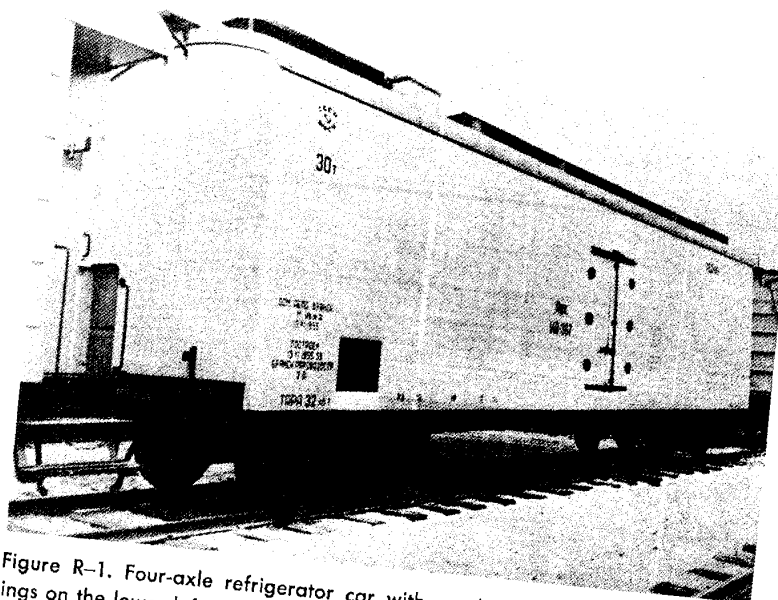


Figure R-1. Four-axle refrigerator car with overhead ice tanks. The markings on the lower left corner state that the car was produced on 13 June 1955 by the Bryansk Steam Locomotive Building Plant, now called the Bryansk Machine Building Plant.

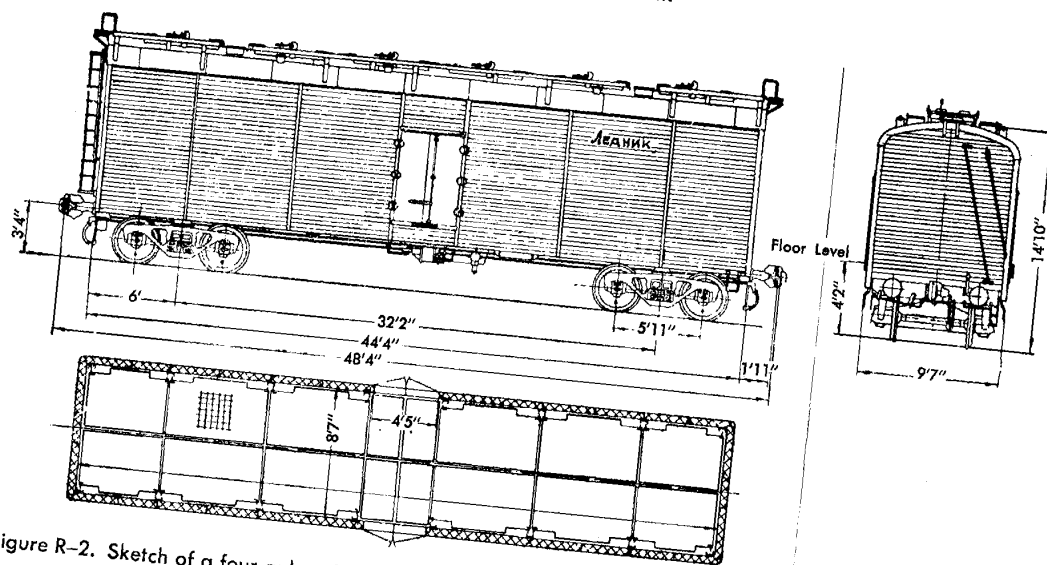


Figure R-2. Sketch of a four-axle refrigerator car with a capacity of 30 metric tons with overhead ice tanks. The word ледник means "refrigerator car."

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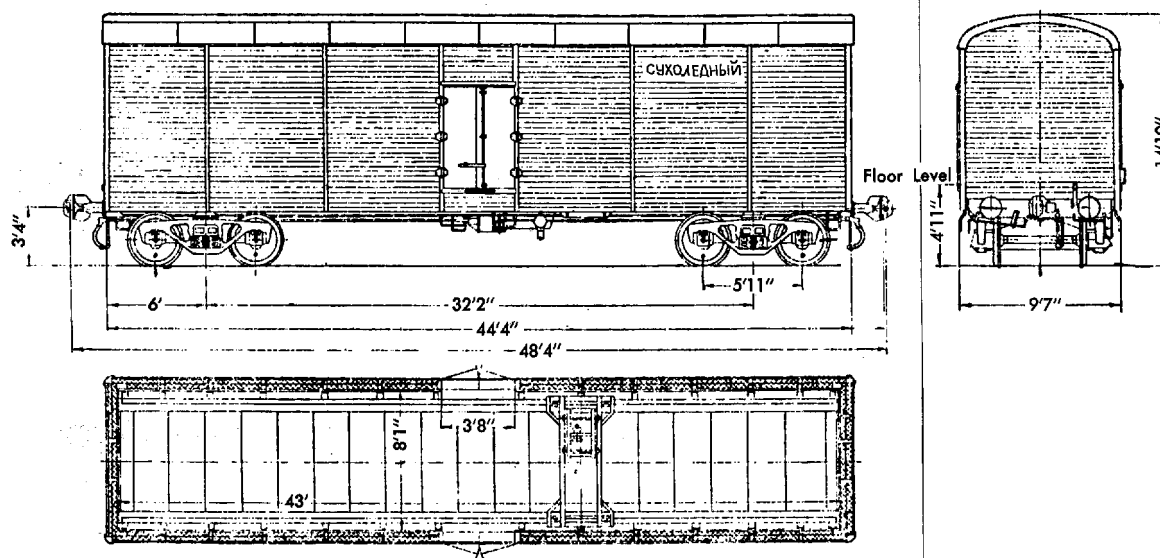


Figure R-4. Sketch of a four-axle refrigerator car with a capacity of 30 metric tons cooled by dry ice.  
The word сухоледный means "dry ice."

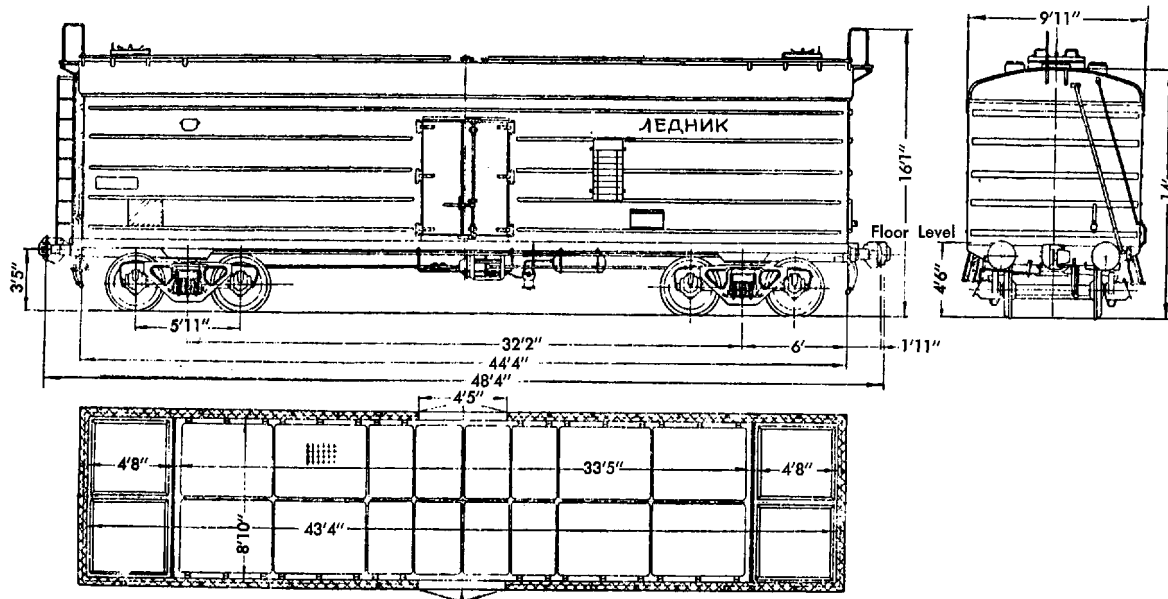


Figure R-5. Sketch of a four-axle all-metal refrigerator car with a capacity of 32 metric tons

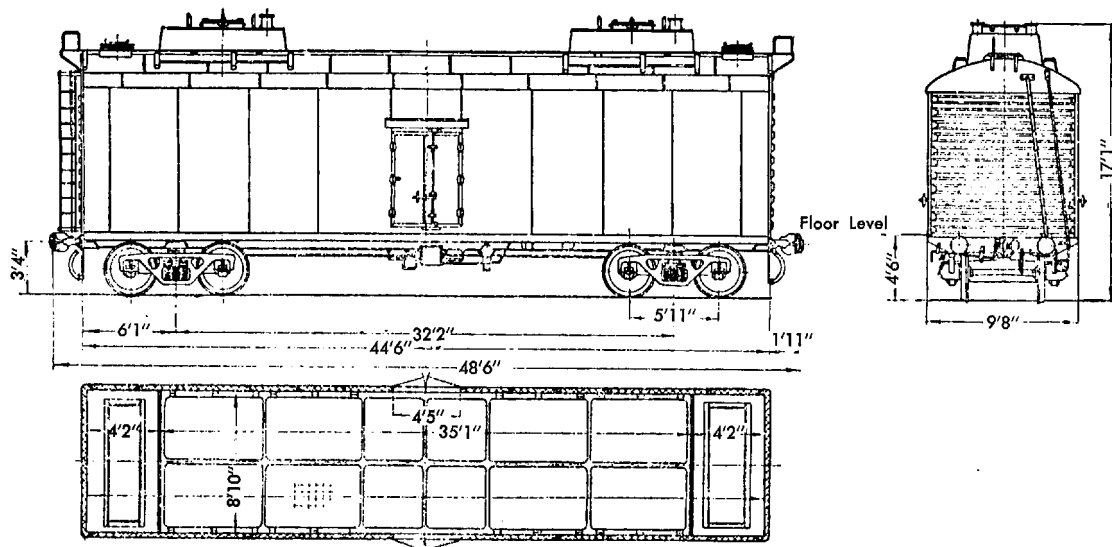


Figure R-6. Sketch of a four-axle all-metal refrigerator car with a capacity of 30 metric tons using the Kleymentov cooling system

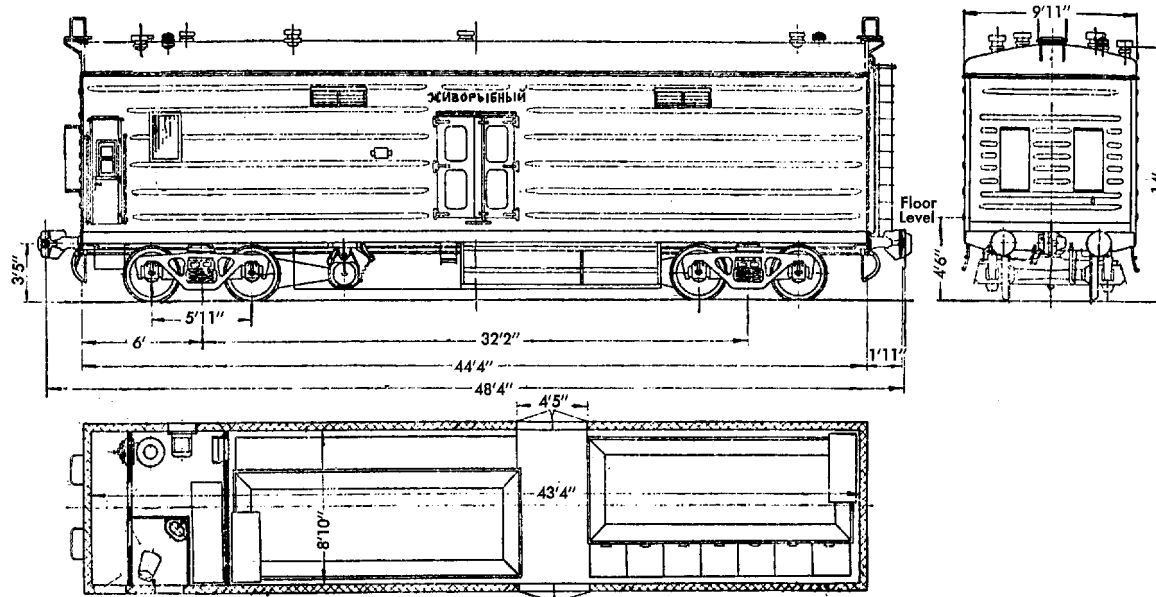


Figure R-7. Sketch of a four-axle all-metal refrigerator car with a capacity of 32 metric tons for transporting live fish (1952 model). The word *живорыбный* means "live fish." This car carries the live fish in tanks and must be moved as part of a passenger train. The car was designed by the Bryansk Steam Locomotive Building Plant, now called the Bryansk Machine Building Plant.

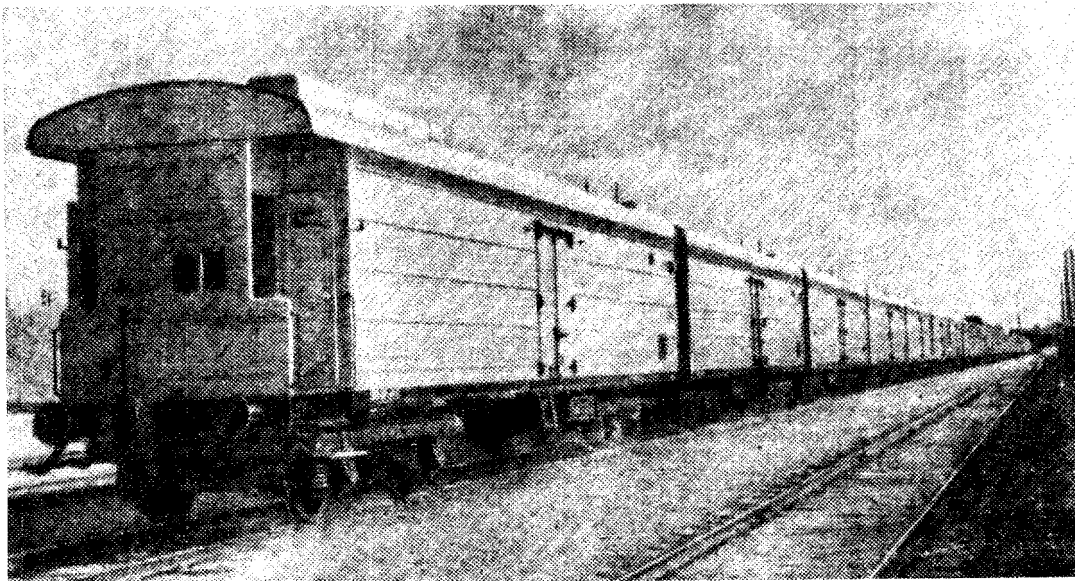


Figure R-8. Twenty-three car refrigerator train consisting of 20 refrigerator cars and 3 special cars—a car containing cooling equipment, a diesel-electric car, and a service car. The three special cars usually are located in the middle of the train.

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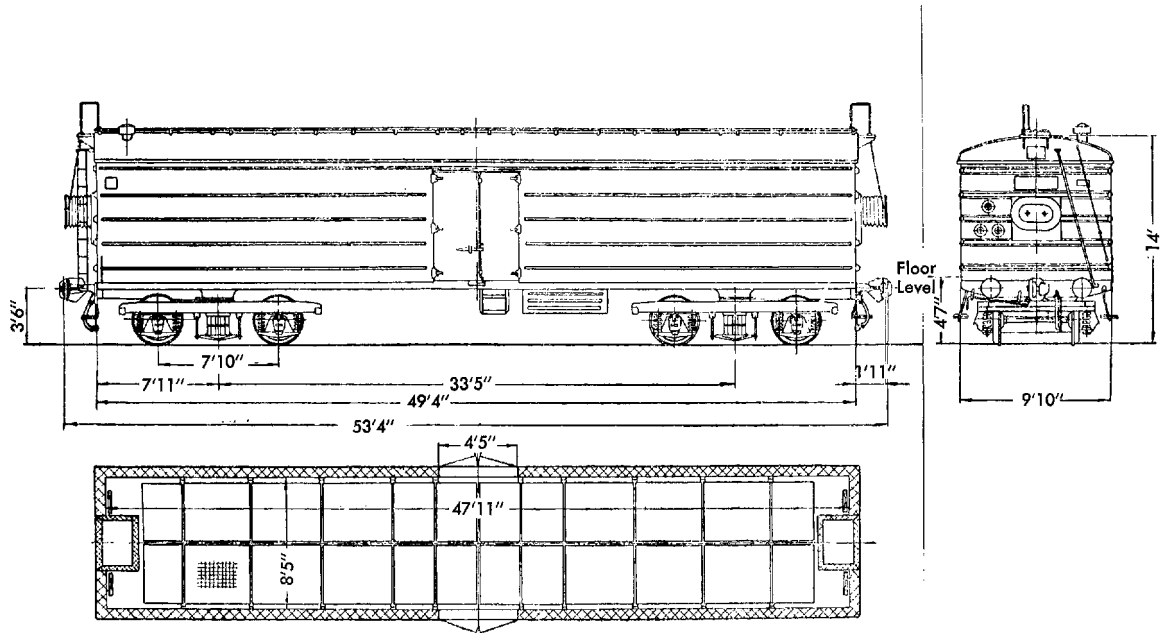


Figure R-9. Sketch of a refrigerator car of the type used in a 23-car refrigerator train (see Figure R-8). Notice the oval cross section of the accordion hose connection in the center of the end of the car and the three smaller connections to its left, one above and two below.

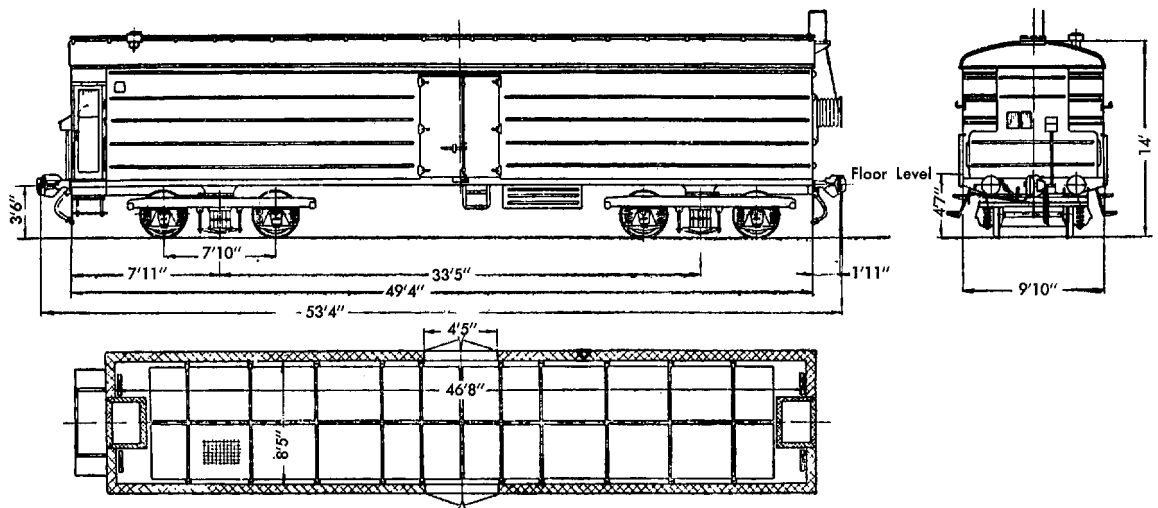


Figure R-10. Sketch of a refrigerator car of the type used in a 23-car refrigerator train (see Figure R-8). This car is equipped with hand brakes.

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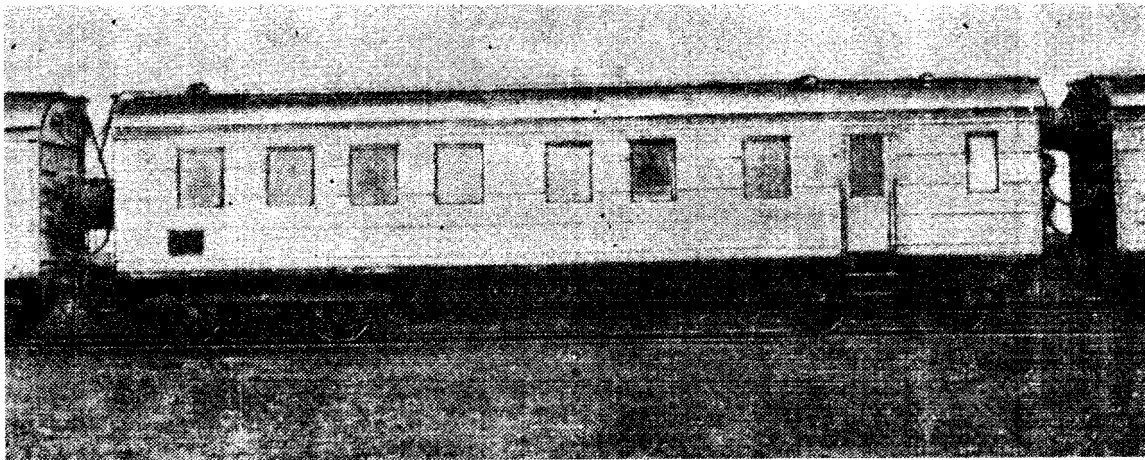


Figure R-11. Service car of the type used in a 23-car refrigerator train (see Figure R-8). This car contains the living and sleeping quarters for the train's service personnel. Notice the accordion hose connections at the end of the car—in the center on the left and at the top on the right.

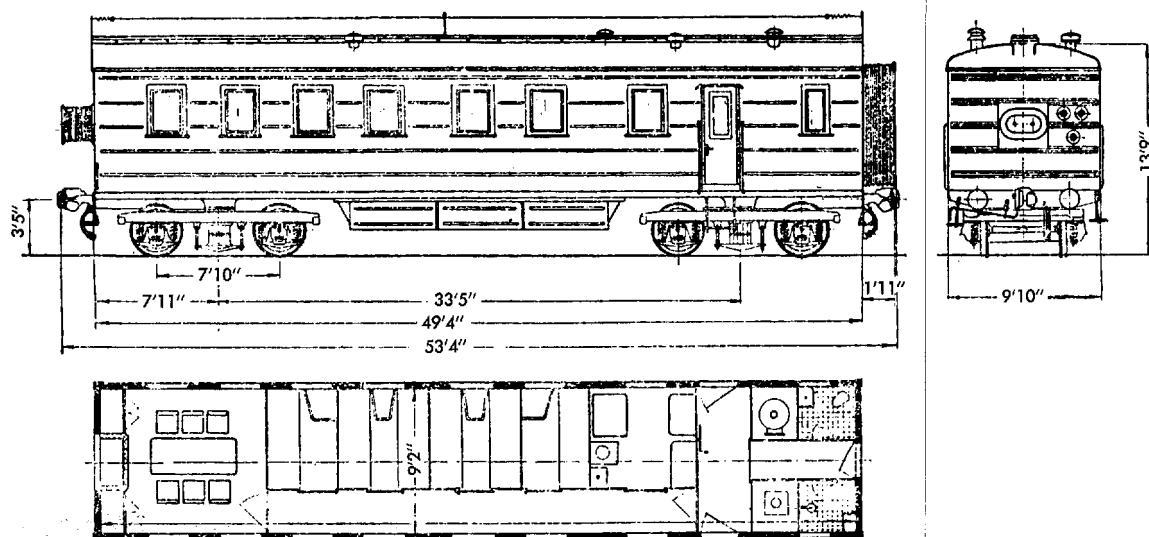


Figure R-12. Sketch of a service car of the type used in a 23-car refrigerator train (see Figure R-8). Notice the accordion hose connection on the left end of the car and its oval cross section as shown in the end view of the car. This connection is the same as that shown in the photograph of the car, Figure R-11. The accordion connection on the right end of the car, however, is not the same as the one shown in the photograph. The one illustrated in this sketch is the same size as a connection between passenger cars—that is, large enough to permit a man to walk through it.

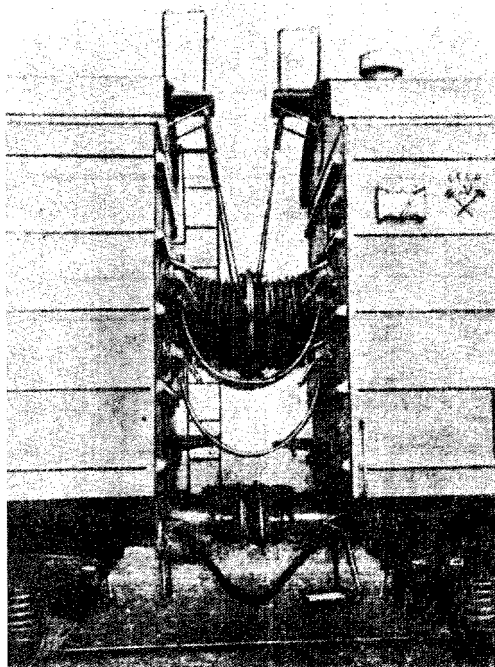


Figure R-13. Connections used between cars of a 23-car refrigerator train (see Figure R-8)

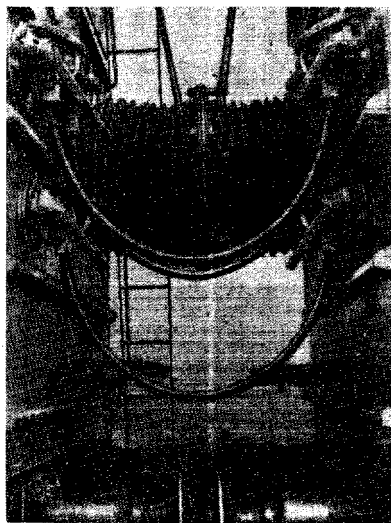


Figure R-14. Closeup of connections between cars of a 23-car refrigerator train (see Figure R-8). There are three small connections in the foreground, two above and one below, and a large accordion hose connection in the background. The two large objects at the bottom of the photograph are not connections but buffers.

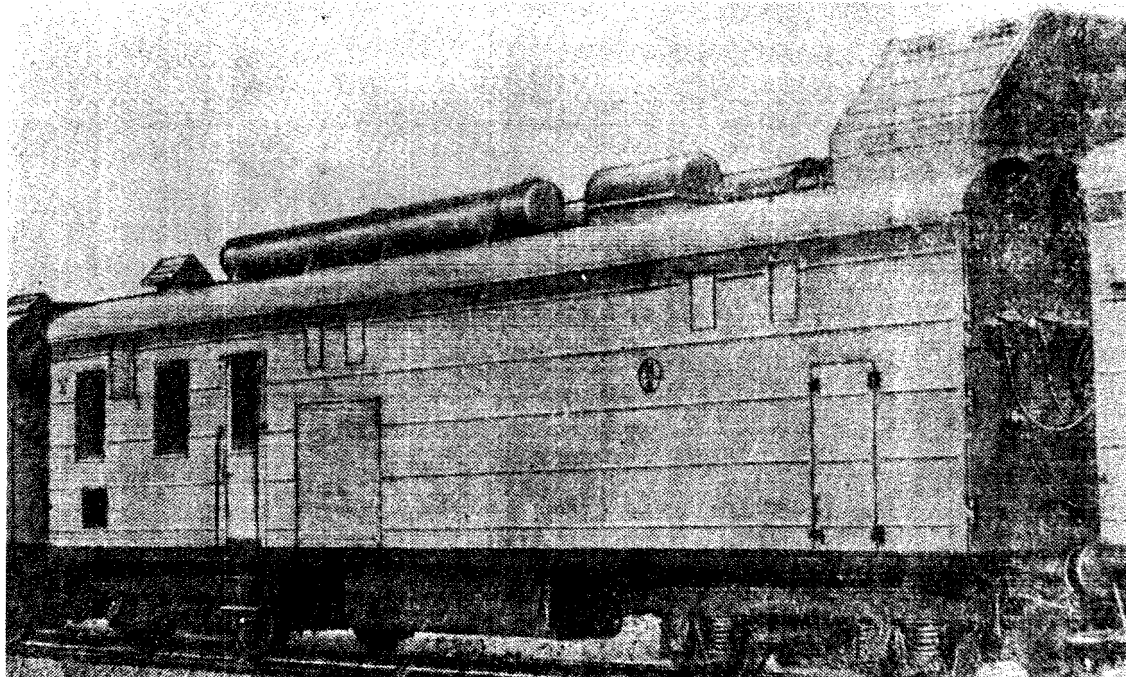


Figure R-15. Car containing the cooling equipment for a 23-car refrigerator train (see Figure R-8). Notice the projection on the top of the right-hand end.

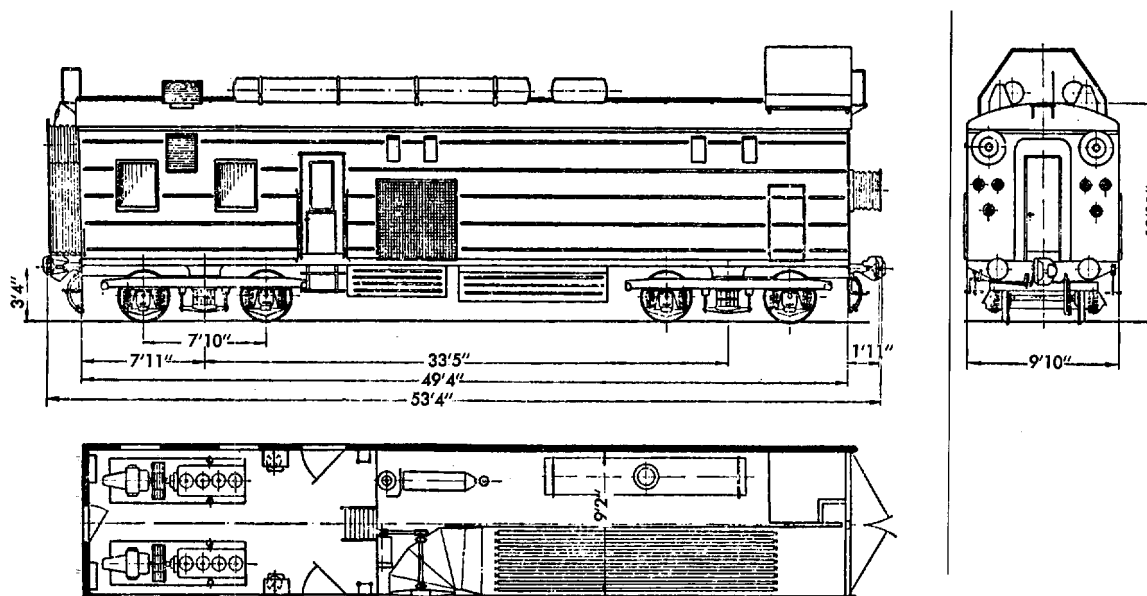


Figure R-16. Sketch of a car containing the cooling equipment for a 23-car refrigerator train (see Figure R-8)

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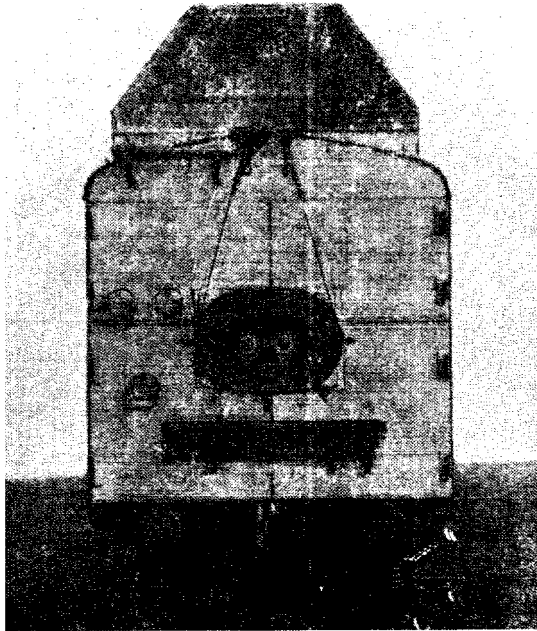


Figure R-17. End view of a car containing the cooling equipment for a 23-car refrigerator train (see Figure R-8). Notice the oval cross section of the large accordion hose connection in the center of the car and the three smaller connections to its left, two above and one below. The buffers appear as two circles in the dark area at the bottom of the car.

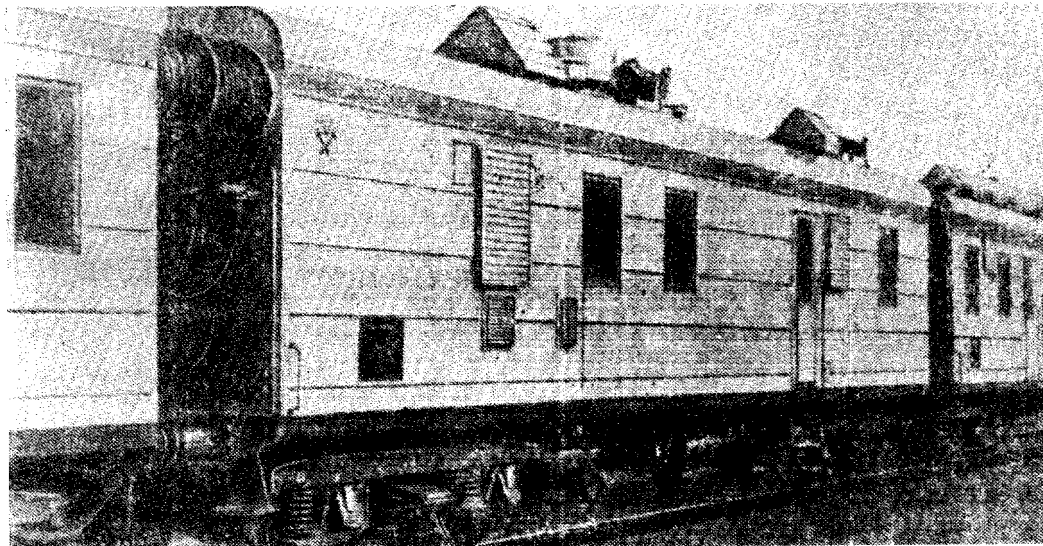


Figure R-18. Car containing the diesel-electric equipment for a 23-car refrigerator train (see Figure R-8). Notice the connections between the cars.

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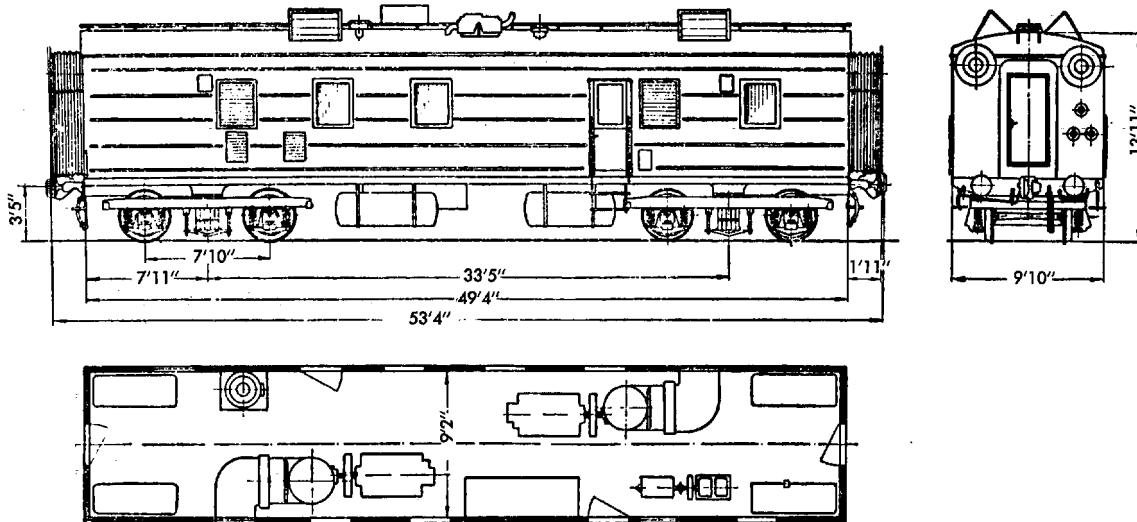


Figure R-19. Sketch of a car containing the diesel-electric equipment for a 23-car refrigerator train (see Figure R-8). The side view clearly shows the passenger type of accordion hose connections at the ends of the car. The end view shows two large accordion hose connections, one on the upper right and one on the upper left, and three smaller connections on the right-hand side, one above and two below.

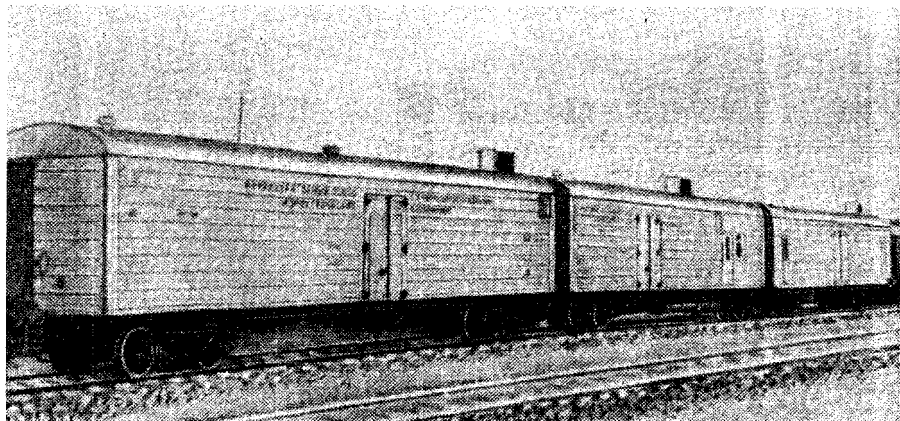


Figure R-20. Section of a refrigerator train consisting of three four-axle cars. These cars, which have machine cooling, were produced by the Bryansk Machine Building Plant in 1956.

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#### VI. Passenger, Dining, Baggage, and Mail Cars

In the USSR, passenger, dining, baggage, and mail cars generally are used only in passenger trains and do not move in trains that include freight cars.

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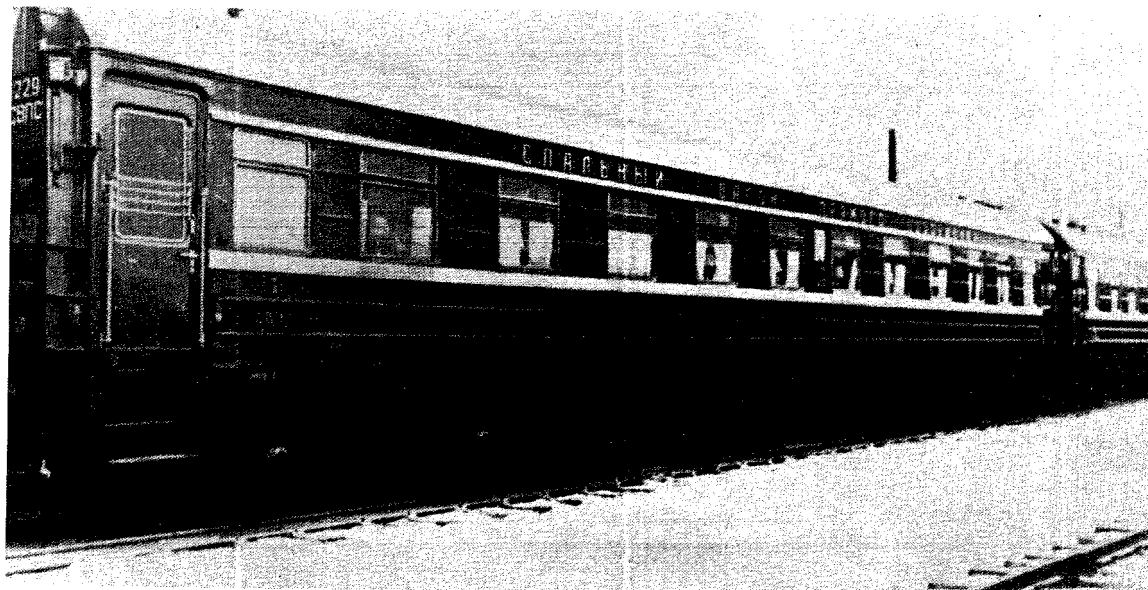


Figure P-1. Four-axle all-metal first-class passenger car. The inscription спальный вагон прямого сообщения means "sleeping car of direct connection"—that is, a "through" sleeping car. This photograph was taken in 1955.

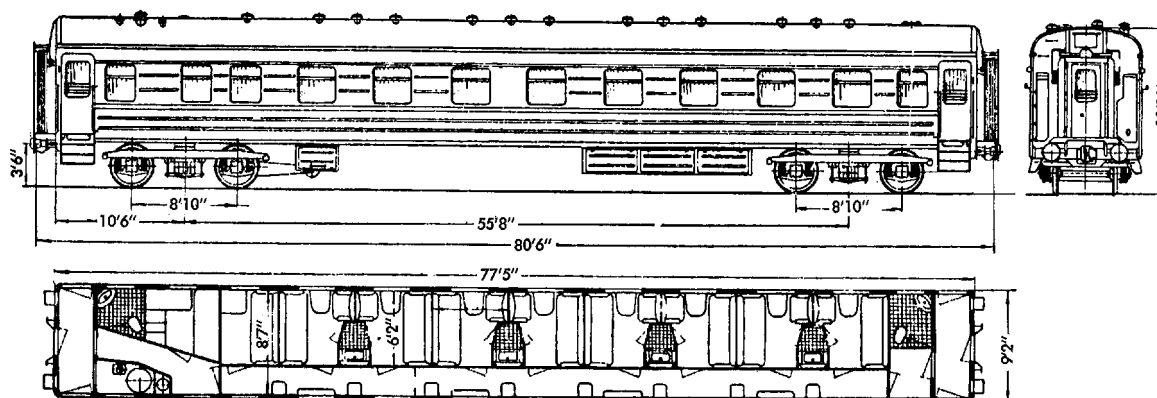


Figure P-2. Sketch of a four-axle all-metal first-class passenger car. This car has 18 sleeping places.

25X1B

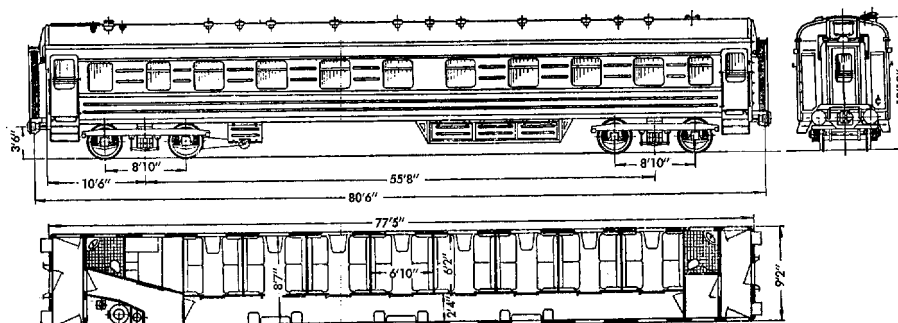


Figure P-4. Sketch of a four-axle all-metal first-class passenger car. This car has 32 sleeping places.

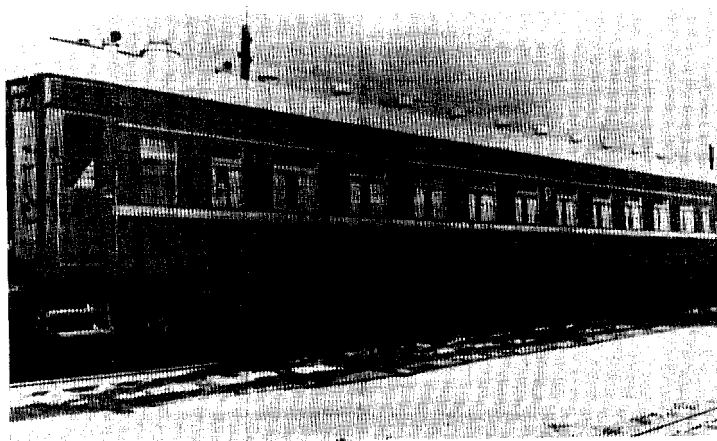


Figure P-5. Four-axle all-metal third-class passenger car. This photograph was taken in 1955.

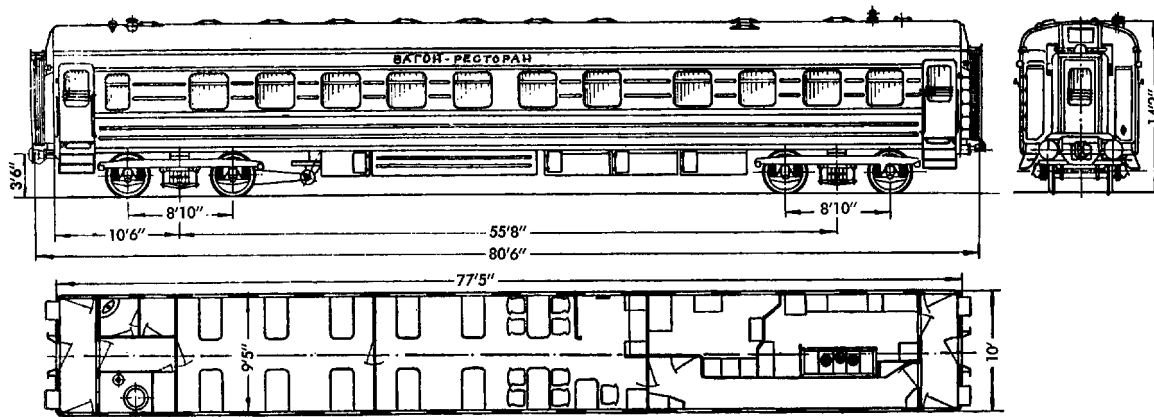


Figure P-6. Sketch of a four-axle all-metal dining car. The inscription *вагон-ресторан* means "restaurant car." A dining car carries more equipment beneath its body than does the usual passenger car.

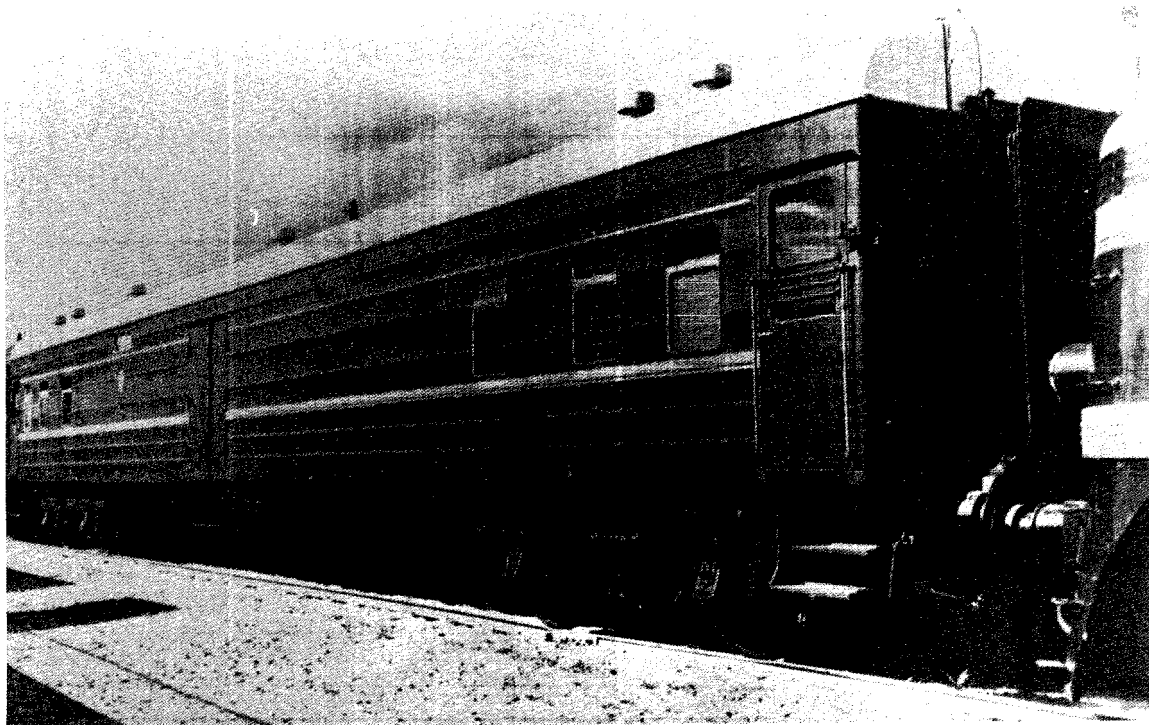


Figure P-7. Four-axle all-metal baggage car. The word *багажный* means "baggage."

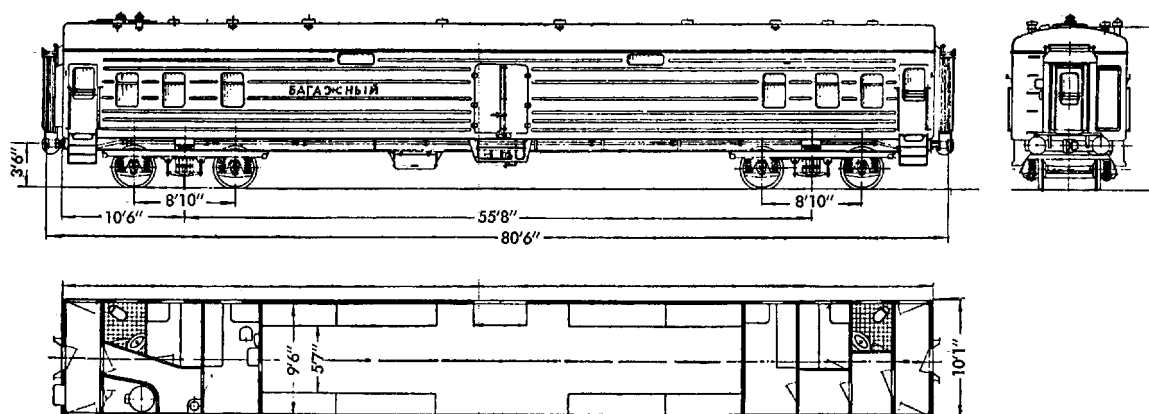
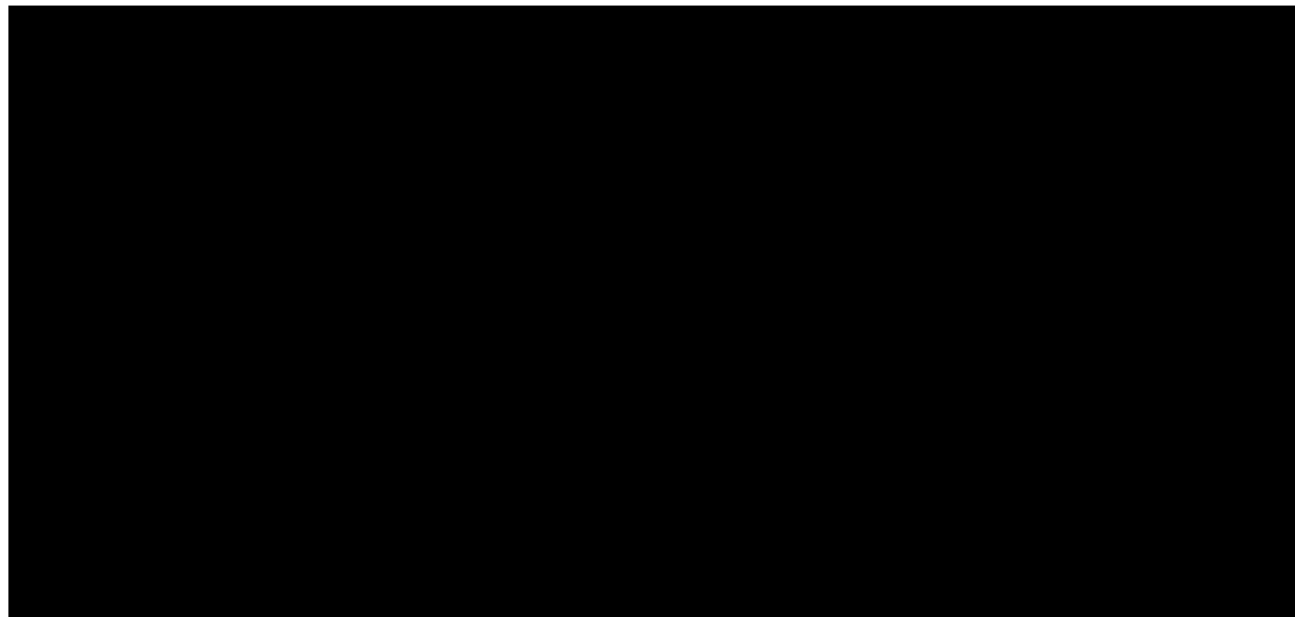


Figure P-8. Sketch of a four-axle all-metal baggage car

25X1B



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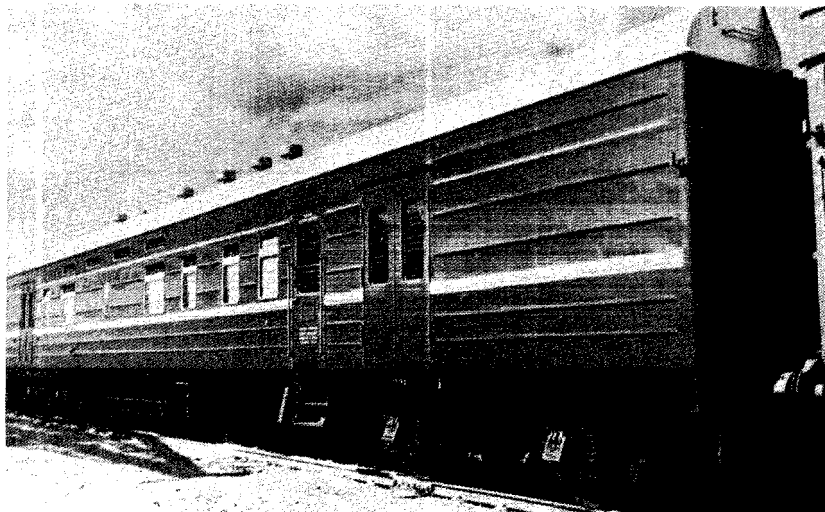
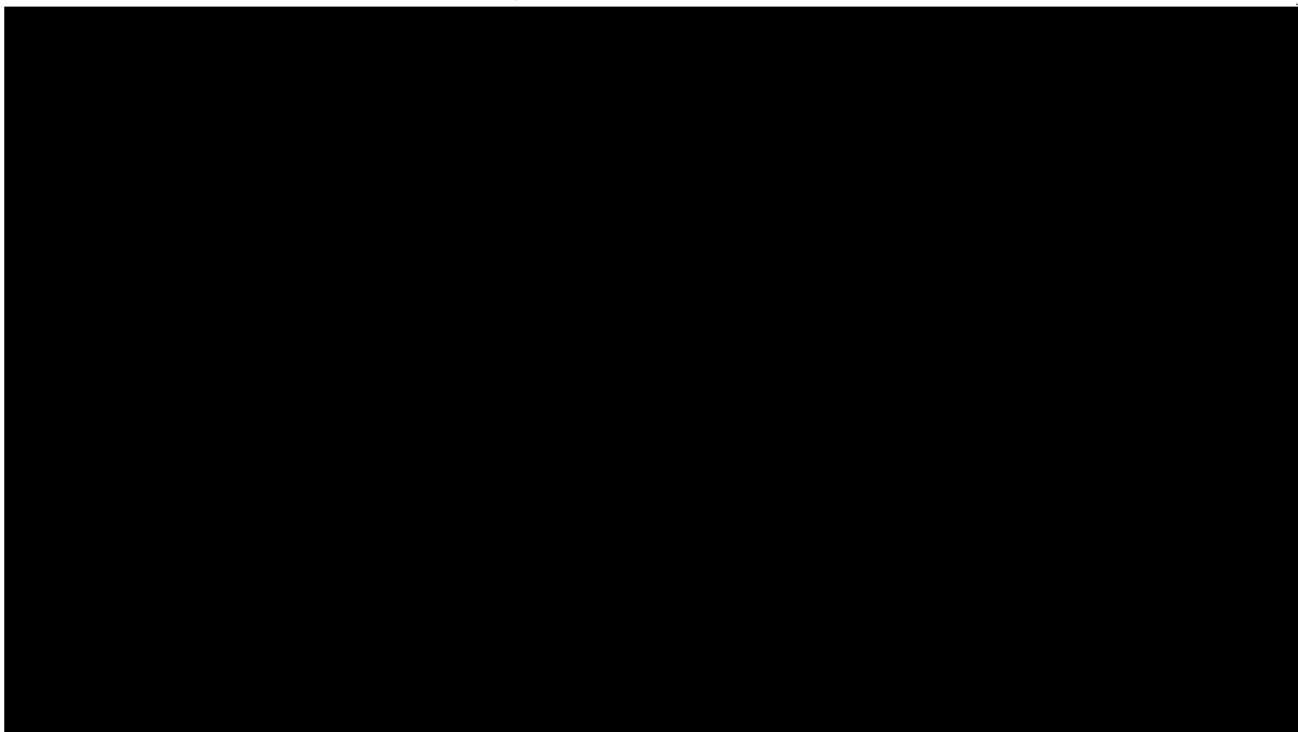


Figure P-10. Four-axle all-metal mail car. The word почтовый means "mail."

25X1B



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## VII. Other Equipment

Other equipment used on Soviet railroads includes crane cars, snowplows, traction substations, power cars and trains, and equipment used in tracklaying, clearing, inspection, and maintenance.

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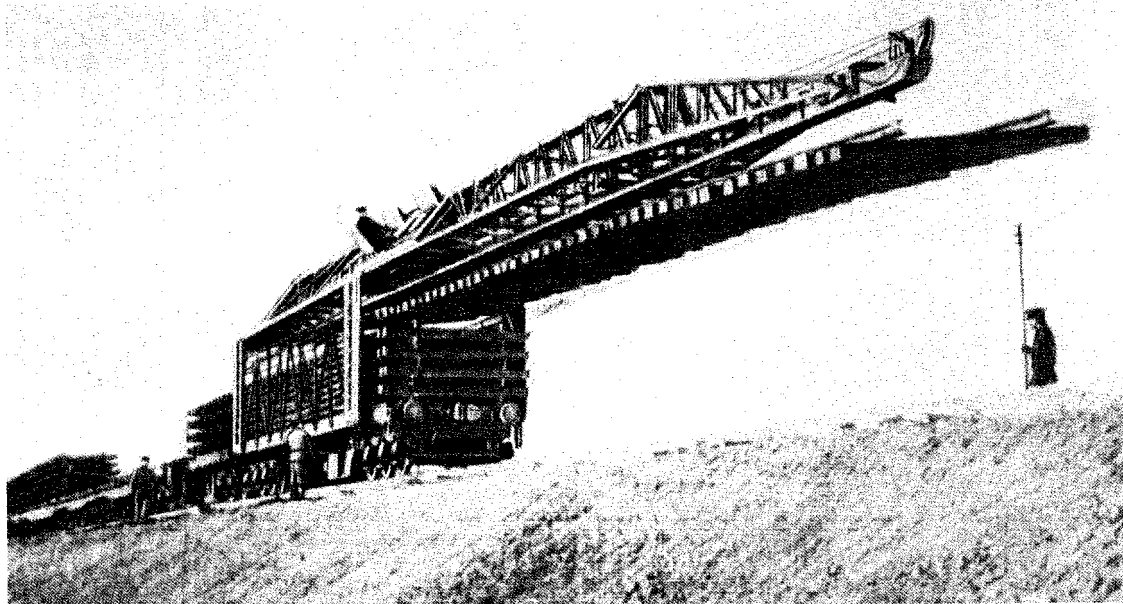


Figure O-1. Tracklaying crane specially designed for laying cross-ties and rails simultaneously. This photograph was taken about 1955.

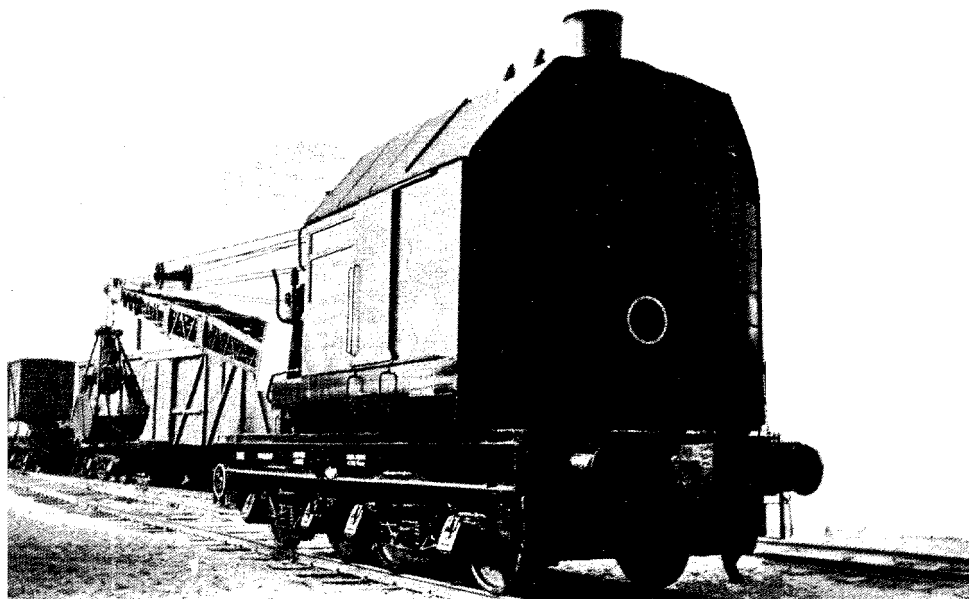


Figure O-2. Four-axle crane car with a capacity of 15 metric tons. Notice the beveled roof.

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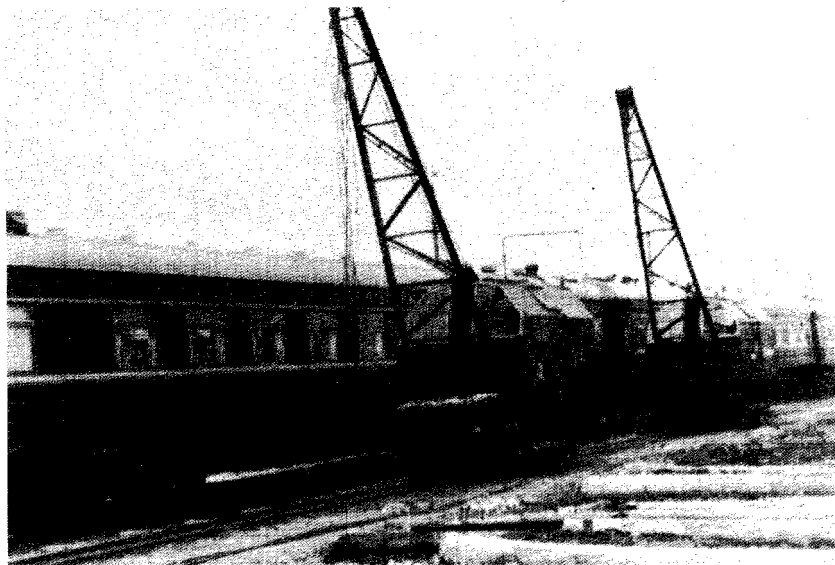


Figure O-3. Timber crane cars. This photograph was taken about 1957.



Figure O-4. Unidentified crane car unit. This photograph was taken about 1958.

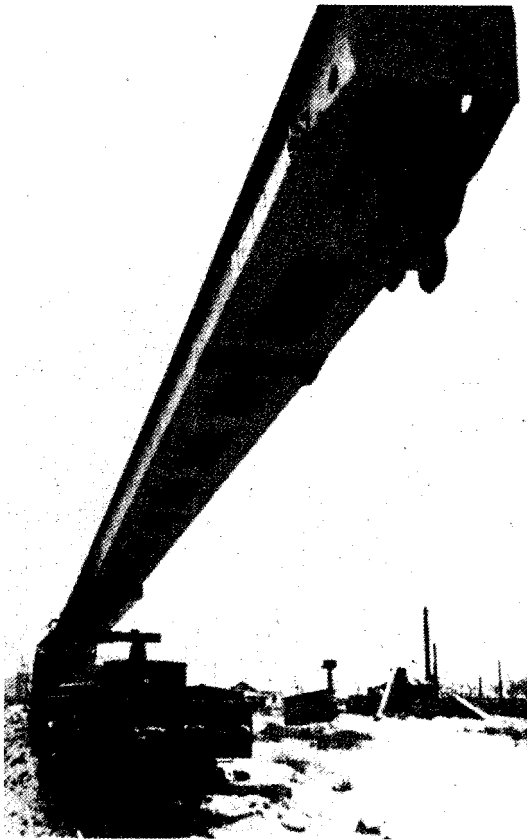


Figure O-5. Crane with a capacity of 82.5 metric tons designed for use in bridge construction. This crane, 337 feet long, was produced by the Uglich Machine Repair Plant.

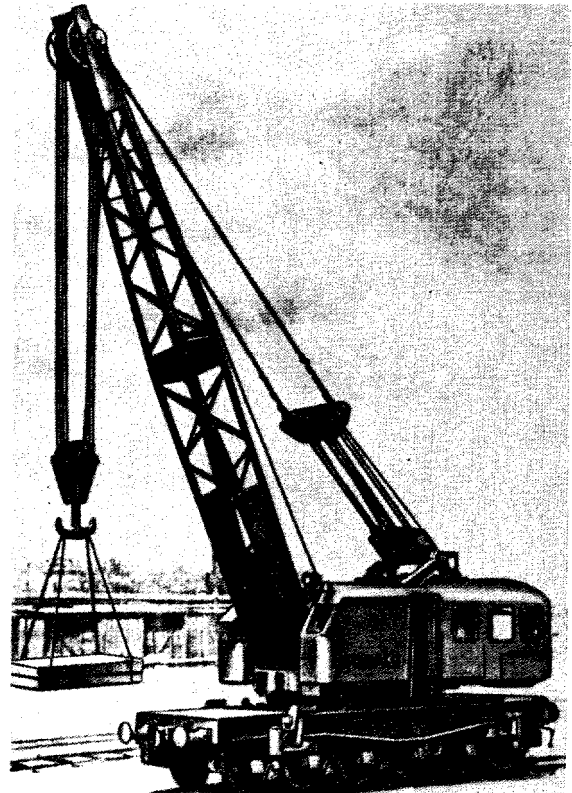


Figure O-6. Six-axle crane car of the K-501 type. This type of car can travel under its own power at speeds up to 14 kilometers per hour and can be towed at speeds up to 60 kilometers per hour.

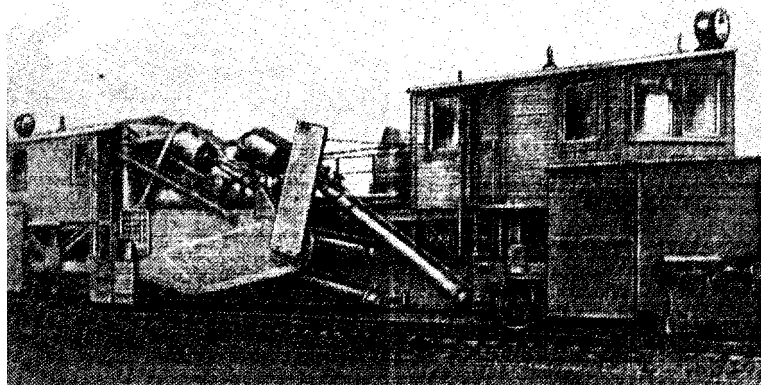
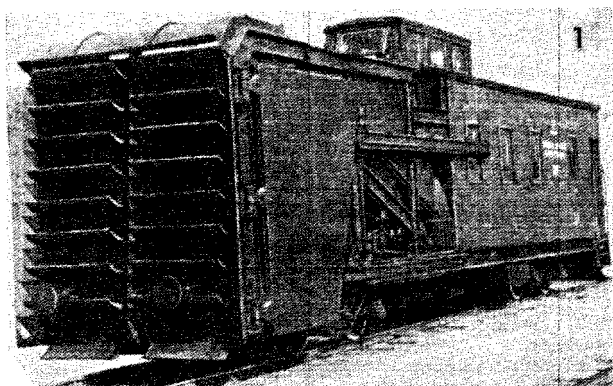
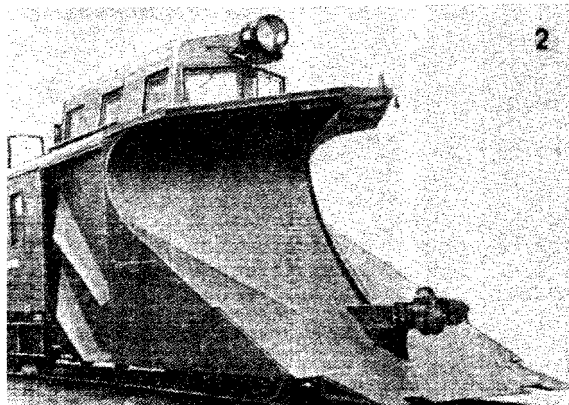


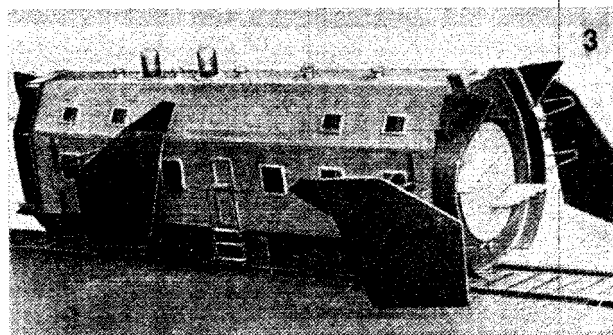
Figure O-7. Blade type of snowplow. This type of plow is used along banks and slopes of railroad lines.



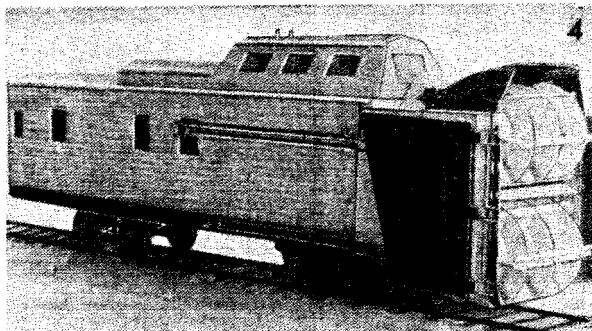
1. Scaper-rotor



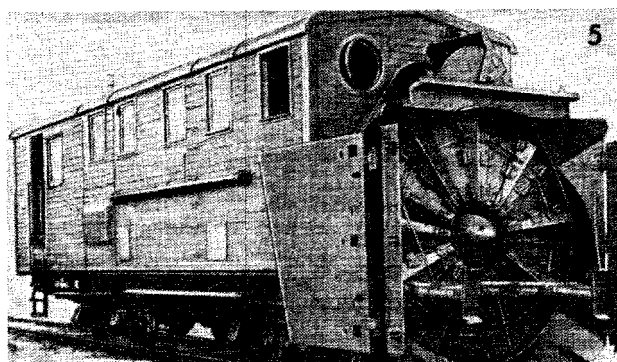
2. Plow



3. Planetary



4. Three-rotor



5. Rotor

Figure O-8. Five types of snowplows

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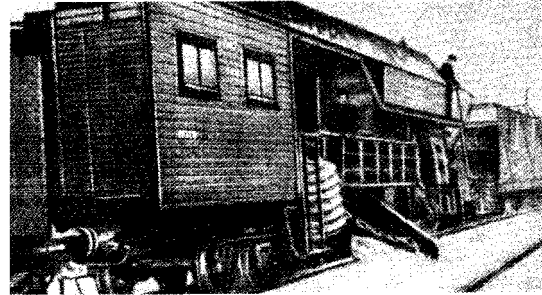
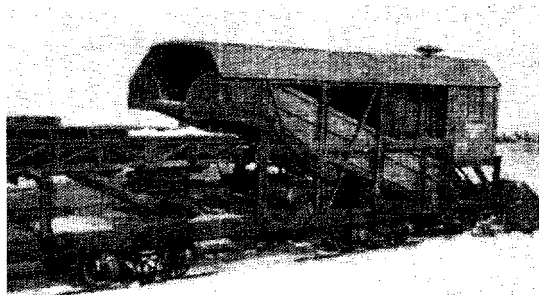
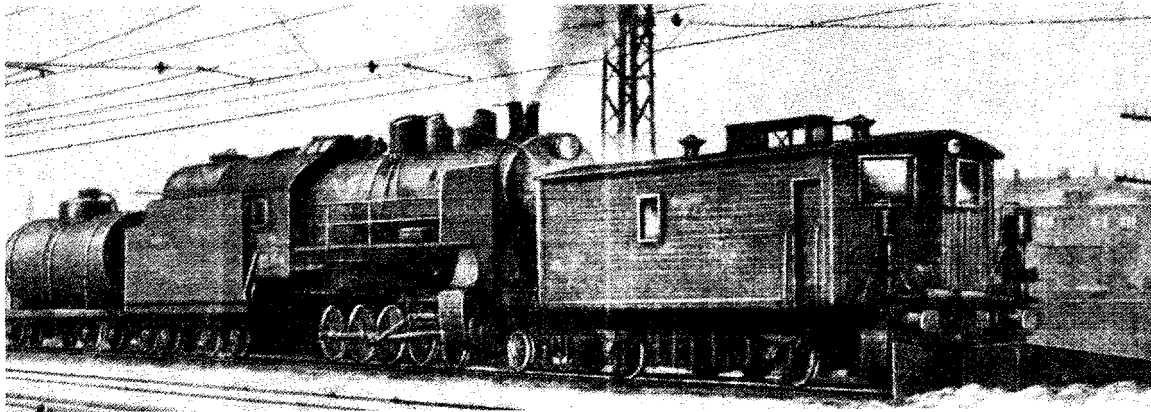


Figure O-9. Three types of snow-removal equipment for use in railroad yards

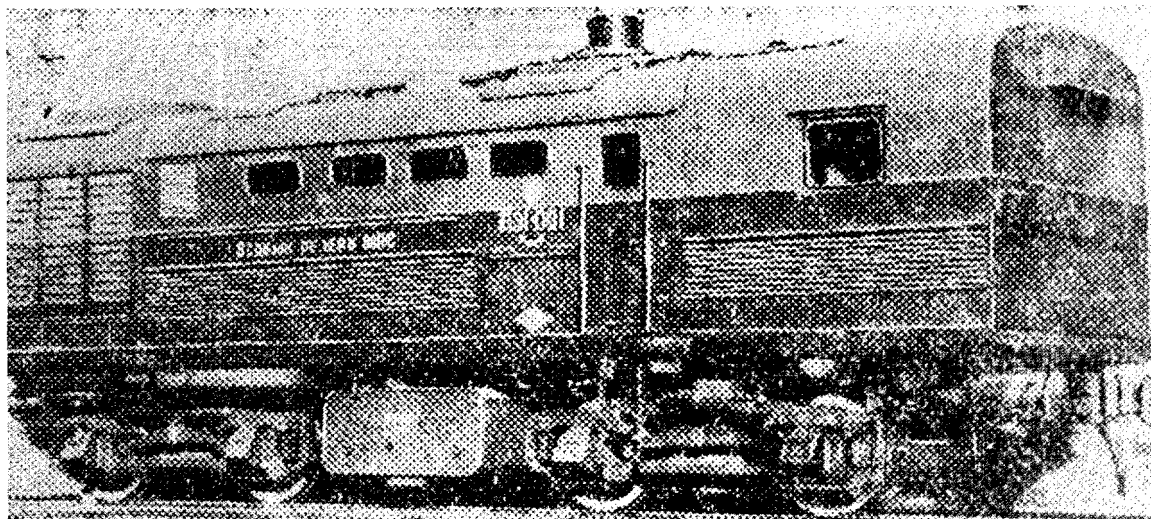


Figure O-10. Mobile electric powerplant PE-1. Produced by the Khar'kov Diesel Locomotive Building Plant about 1956, this powerplant can develop 600 kilowatts and is designed to supply electricity to railroad units and construction projects. The powerplant can work in parallel with other similar units. The exterior of this car is similar to that of the TE-3 diesel locomotive produced by the same plant.

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Figure O-11. Electric power generating car. A single car of this type using a 2D-100 diesel engine has a capacity of 1,050 kilowatts and produces 6,300 volts alternating current. Produced by the Kolomna Diesel Locomotive Building Plant, these cars may work together in pairs to produce 2,100 kilowatts. Notice the shape of the roof at the end of the car. This photograph was taken in June 1958.

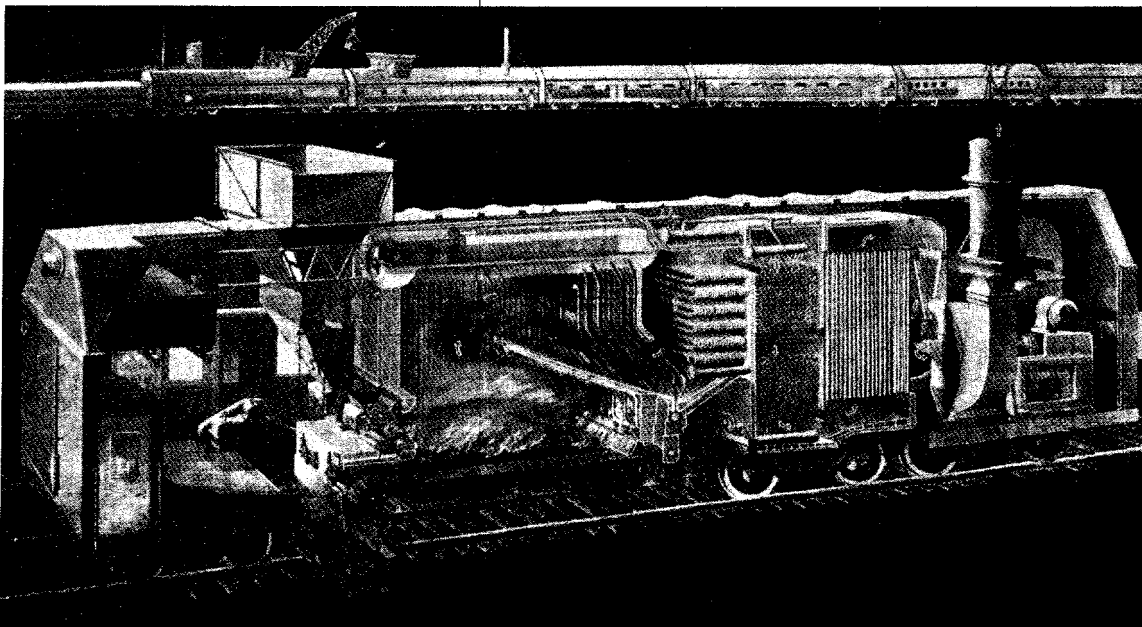


Figure O-12. Sketch of an electric power generating train, in which the power is generated by steam, and a cutaway of the boiler car. This train, which is capable of generating 4,000 kilowatts, was produced by the Bryansk Machine Building Plant. The boiler can produce 12 tons of superheated steam per hour at a pressure of 39 atmospheres and at a temperature of 440° Centigrade. Plans for the unit were developed by the Central Scientific Research Institute for Boilers and Turbines in cooperation with the Bryansk Plant.

Notice the distinctive external characteristics of the boiler car: the beveled roof, the reinforcing ribs over the top of the roof, the loading chute for fuel, and the exhaust stack and guys on the roof. The loading chute and exhaust stack are not in place on the roof while the train is in transit.



Figure O-13. Electric power generating train. The cars for this train were built for the USSR in Czechoslovakia in 1956 and are often used to supply power for new construction sites. The cylindrical objects on the tops of the cars on the right are cooling towers. The word энергопоезд, "energy train," may appear on the sides of individual cars.

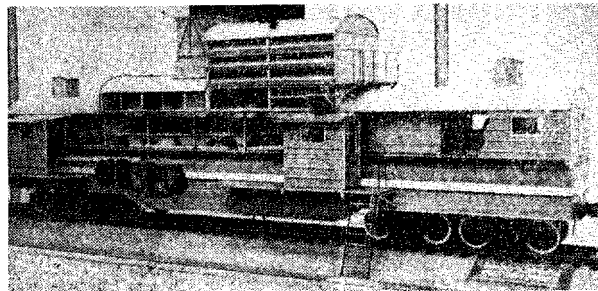


Figure O-14. Gas-turbine car of an electric power generating train that is capable of generating 6,000 kilowatts. Equipment for cars of this type is produced by the Neva Machine Building Plant imeni Lenin and is mounted on an eight-axle flatcar by the Bryansk Machine Building Plant.

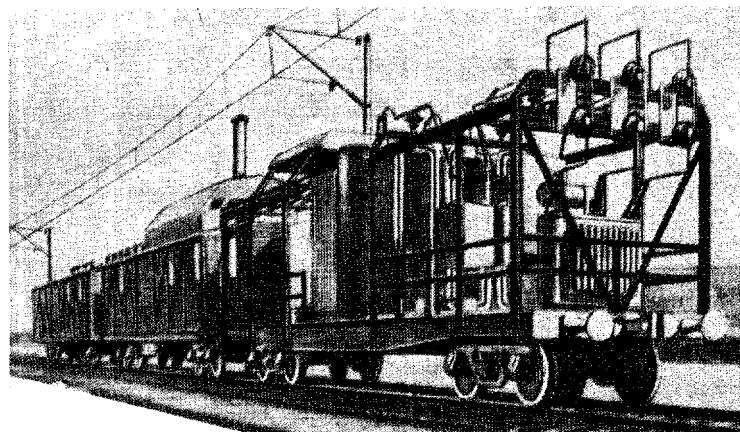


Figure O-15. Mobile traction substation for electrified railroad lines. This substation consists of high-voltage electrical equipment with a voltage of 10 kilovolts and a car for a mercury rectifier.



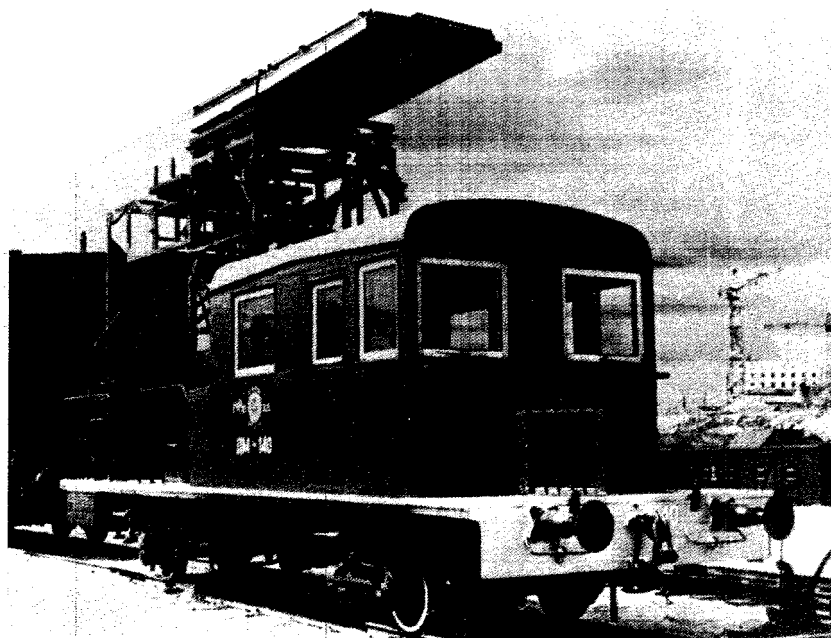


Figure O-16. Two-axle D-140 railroad trolley for use in connection with the overhead contact network of electrified railroad lines

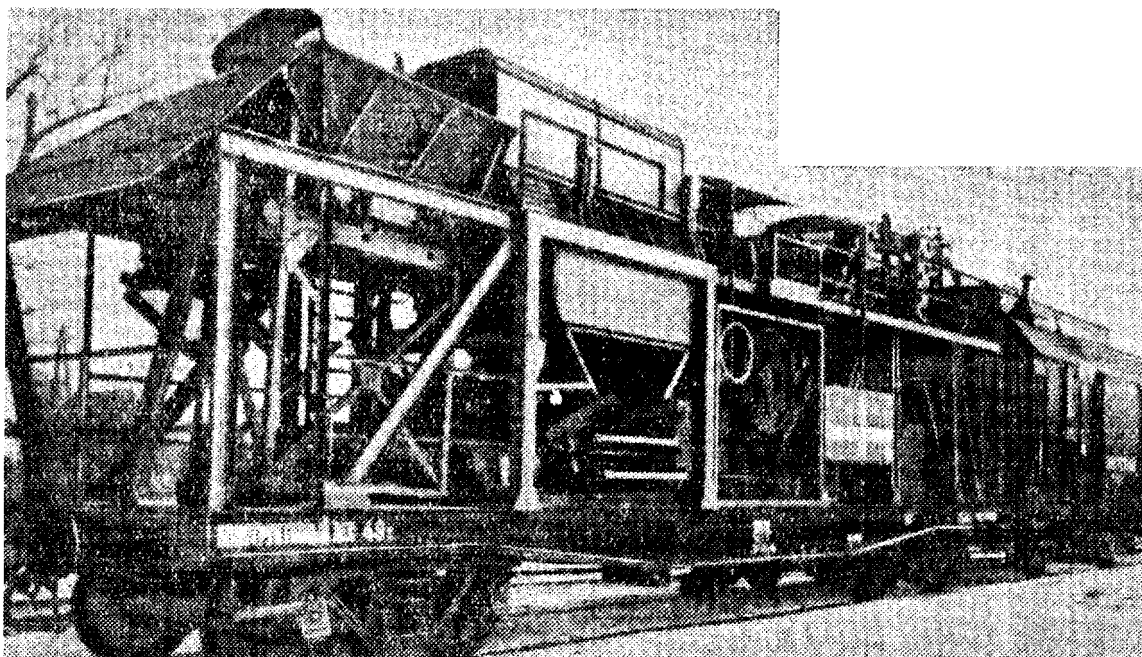


Figure O-17. Ballast and screening machinery mounted on a special four-axle railroad car



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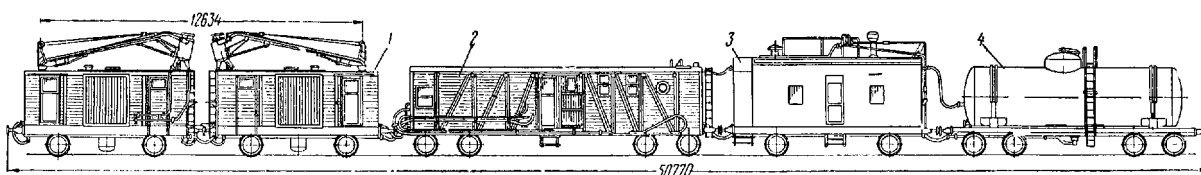


Figure O-18. Sketch of a mobile unit for servicing diesel locomotives in railroad yards. This unit consists of two cars that supply sand, one car that supplies fuel, one car containing a steam boiler, and a tank car. The unit can be moved by any locomotive and requires reloading only once every 24 hours.

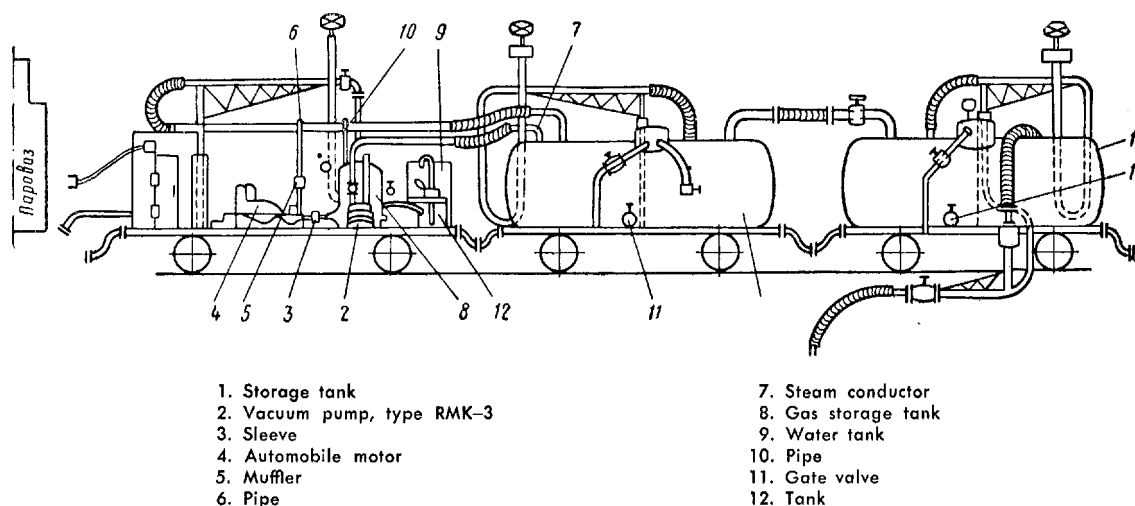


Figure O-19. Main parts of a mobile unit used to vacuum-clean tank cars. This unit is mounted on three two-axle cars, one of which is a boxcar and two of which are flatcars.



Figure O-20. Four-axle rail-grinding car. The inscription рельсошлифовильный вагон means "rail-grinding car." Notice the equipment under the car.

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## Tables

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Table 1

## Colors and Inscriptions Used on Soviet Freight Cars

Basic Color	Type of Car	Other Colors, Inscriptions, and Remarks	Use of Car
White or pale yellow.	Freight.....	Gray or light-yellow interior.....	Refrigeration, ventilation, or transport of milk or mineral oil.
Black.....	Tank.....		Transport of mazut.
Black.....	Tank.....	Yellow band 500 mm wide along the sides with red * squares on the end of the car. The type of acid transported is indicated by inscriptions in the middle part of the stripe and on the square in black letters 154 mm high—for example: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="text-align: center;"> <u>опасно</u> серная кислотная Danger Sulfuric acid </div> <div style="text-align: center;"> <u>опасно</u> сернокислота Danger Melange </div> <div style="text-align: center;"> <u>опасно</u> меланж Danger Fuming sulfuric acid </div> <div style="text-align: center;"> <u>опасно</u> олеум Danger Hydrochloric acid </div> </div> <div style="margin-top: 5px;"> <u>опасно</u> плавиковая кислота Danger Hydrofluoric acid </div>	
		Cars carrying oleum (fuming sulfuric acid) have external insulation, whereas cars carrying melange and sulfuric acid do not. Tanks for cars carrying sulfuric acid are made of aluminum alloys. Tank cars carrying acids have upper discharge equipment and the inscription срочный возврат на станцию ... жд (immediate return to station ... railroad).	
Black.....	Tank.....	Ocher * band 700 mm wide around the length of the tank.....	Transport of bitumen.
Unknown.....	Tank.....	Bright green band 500 mm around both sides and ends of the car. The contents of the car are indicated by inscriptions in letters 154 mm high on a band on both sides of the car—for example: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="text-align: center;"> <u>анилин</u> ядовито Aniline Poisonous </div> <div style="text-align: center;"> <u>хлорбензол</u> ядовито Chlorobenzene Poisonous </div> <div style="text-align: center;"> <u>сероуглерод</u> особо огнеопасно ядовито Carbon bisulfide Especially flammable, poisonous </div> </div>	Transport of poisonous and flammable freight.
		Cars have lower discharge equipment.	
Red.....	Freight....	Gray or yellow interior.....	Long-distance transport (except refrigerator).
Red.....	Box.....	White belt 90 mm wide along length; yellow interior.....	Contains tank for transport of ethyl alcohol.
Red.....	Tank.....	Cars have lower discharge equipment.....	Transport of oil-kerosine.

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Table 1 (Continued):

Colors and Inscriptions Used on Soviet Freight Cars (Continued):

Basic Color	Type of Car	Other Colors, Inscriptions, and Remarks	Use of Car
Red.....	Flat.....	Red interior.....	Long-distance transport.
Yellow.....	Flat.....	Yellow interior.....	Local transport.
Yellow.....	Tank.....	The car is without lower discharge equipment. A skull and crossbones are to the left of the inscription:  метанол яд-огнеопасно Methanol  Poisonous, flammable	Transport of methanol (methyl alcohol).
Yellow.....	Tank.....	Red band 500 mm wide along both sides of the car on which is inscribed.....  желтый фосфор ядовито-огнеопасно Yellow phosphorous Poisonous, flammable	Transport of yellow phosphorous.
Pale yellow...	Tank.....	The car has siphon equipment for upper discharge, a protective valve, an intake valve, and an examination port.	Transport of benzine, ligroine, gasoline, toluene, and petroleum ethers.
Pale yellow or white.	Freight....	Gray or light-yellow interior.....	Refrigeration, ventilation, or transport of milk or mineral oil.
Green.....	Freight....	.....	Cars of organizations other than Ministry of Railroads (MPS). These cars must have all inscriptions established for MPS cars, except sign of MPS and road registration.
Green.....	Tank.....	White circle 350 mm wide around the edge of the ends of the tank.....	Cars of organizations other than Ministry of Railroads. These cars must have all inscriptions established for MPS cars, except sign of MPS and road registration.

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Table 1 (Continued):

Colors and Inscriptions Used on Soviet Freight Cars (Continued):

Basic Color	Type of Car	Other Colors, Inscriptions, and Remarks	Use of Car
Light blue . . . .	Tank . . . .	Inscribed жидкий кислород, огнеопасно, не спускать с горки, не толкать, срочный возврат на ст . . . ж.д. (liquid oxygen, flammable, do not hump, do not jar, immediate return to station . . . railroad).	Transport of liquid oxygen (LOX). LOX also has been transported in specially designed green or red cars.
Light gray . . . .	Tank . . . .	Long-distance transport of service other than Ministry of Railroads.	Long-distance transport of service other than Ministry of Railroads.
Light gray . . . .	Tank . . . .	Yellow band 300 mm wide in the middle of both sides of the car. On the sides of the tank in bright green paint on a white base is inscribed аммиак жидкий and сжиженный газ ("ammonia, poisonous" and "liquefied gas"). Ammonia cars are equipped with boxes for conductors, handbrakes, and safety valves.	Transport of ammonia.
Light gray . . . .	Tank . . . .	Khaki band 300 mm wide in the middle of both sides of the car . . . . .	Transport of chlorine.
Light gray . . . .	Tank . . . .	Black band 300 mm wide in the middle of both sides of the car . . . . .	Transport of sulfurous anhydride.
Light gray . . . .	Tank . . . .	Red band 300 mm wide in the middle of both sides of the car . . . . .	Transport of butane, butylene, propane, and other flammable gases.
Gray . . . . .	Freight . . . .	White circle 60 cm in diameter marked with a skull and below the skull яд (poison), below which on the entire length of the door is inscribed варон загружать только этиловой жидкостью (car to be loaded only with ethyl fluid) in letters 5 cm high. To the left of the door is inscribed срочный возврат на станцию . . . ж.д. дор. (immediate return to station . . . railroad), and to the right of the door in letters 10 cm high с горки не спускать (do not hump).	Transport of ethyl fluids.
Unknown . . . . .	Tank . . . .	Bright green inscriptions ядовито-огнеопасно, этилированный бензин, пригоден только для моторов (poisonous, flammable; ethyl gasoline; use only for motors). The car has upper discharge equipment.	Transport of ethyl gasoline.
Unknown . . . . .	Tank . . . .	Inscribed <u>сернистая нефть</u> <u>ядовито-огнеопасно</u> <u>Sulfurous oil</u> <u>Poisonous, flammable</u>	Transport of sulfurous oil.

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Table 1 (Continued):

Colors and Inscriptions Used on Soviet Freight Cars (Continued):

Basic Color	Type of Car	Other Colors, Inscriptions, and Remarks	Use of Car
Unknown.....	Tank.....	White stripe on side walls. Inscribed спиртовая, срочный возврат, приписана к . . . доре (alcohol, immediate return, registered to . . . railroad).	Transport of ethyl alcohol.
Green.....	Special....	Inscribed огнеопасно, не спускать с горки (flammable, do not hump).....	Transport of liquid oxygen (LOX).
Red.....	Special....	(The same).....	(The same).

<sup>a</sup> Various sources give this color as red, yellow, or yellow-red.

<sup>b</sup> Given in another source as yellow.

Table 2  
Colors and Inscriptions Used on Cylinders for Transporting Gas in the USSR

Color of Cylinder	Color of Inscription	Inscription <sup>a</sup>	Contents of Cylinder	Color of Belt
Black . . . . .	Yellow . . . . .	азот	Nitrogen . . . . .	Brown.
Black . . . . .	White . . . . .	сжатый воздух	Compressed air . . . . .	None.
Black . . . . .	White . . . . .	сернистый ангидрид	Sulfurous anhydride . . . . .	Yellow.
Black . . . . .	Yellow . . . . .	углекислота	Carbonic acid . . . . .	None.
Black . . . . .	Yellow . . . . .	<sup>b</sup>	The gas shown by the inscription (any of the other nonflammable gases that are not listed individually in this table).	None.
Blue . . . . .	Black . . . . .	кислород	Oxygen . . . . .	None.
Dark green . . . . .	Red . . . . .	водород	Hydrogen . . . . .	None.
Khaki . . . . .	None . . . . .	None	Chlorine . . . . .	Green.
Khaki . . . . .	None . . . . .	None	Phosgene . . . . .	Red.
Red . . . . .	White . . . . .	<sup>b</sup>	The gas shown by the inscription (any of the other flammable gases that are not listed individually in this table).	None.
White . . . . .	Red . . . . .	ацетилен	Acetylene . . . . .	None.
White . . . . .	Red . . . . .	сероводород	Hydrogen sulfide . . . . .	Red.
Yellow . . . . .	Black . . . . .	аммиак	Ammonia . . . . .	None.

<sup>a</sup> The inscription given is the Russian word for the product shown in the following column.

<sup>b</sup> The Russian word for the gas is inscribed on the cylinder.

Table 3

Colors and Inscriptions Used on Cylinders for Transporting Rare Gases in the USSR <sup>a</sup>

Color of Cylinder	Color of Inscription <sup>b</sup>	Color of Belt	Contents of Cylinder
Black.....	Blue.....	Blue.....	Technical argon.
Black.....	N.A.....	Yellow.....	"High frequency" neon (spectrally purified).
Black <sup>c</sup> .....	N.A.....	Brown.....	Technical gaseous nitrogen.
Black.....	N.A.....	N.A.....	Liquid carbonic acid.
Black.....	Yellow.....	Yellow.....	Technical krypton.
Black and white (lower half, black; upper half, white).	N.A.....	N.A.....	"High frequency" argon (spectrally purified).
Blue.....	N.A.....	N.A.....	Technical and medical gaseous oxygen.
Blue.....	N.A.....	N.A.....	Technical and medical liquid oxygen <sup>e</sup> .
Brown.....	White.....	N.A.....	Helium.
Light brown.....	White.....	N.A.....	Neon-helium mixture.
Dark green.....	N.A.....	N.A.....	Technical hydrogen.
Gray.....	Green.....	Green.....	Purified argon.
Yellow.....	N.A.....	N.A.....	Synthetic liquid ammonia <sup>d</sup> .

<sup>a</sup> These colors and markings are not restricted to cylinders transported by Soviet railroads.

<sup>b</sup> Inscriptions placed on the cylinders are not given in the original source but presumably are the Russian words for the gases contained in the cylinders. For example, the inscription on a cylinder containing helium probably would be гелий.

<sup>c</sup> Analogously the Dewar tank for liquid nitrogen is painted black.

<sup>d</sup> Carried in metal Dewar vessels, tanks ("tanki"), and special tanks ("spetsial'nyye tsisterny"). The Dewar vessels are painted blue.

<sup>e</sup> цистерны ("tsisterny"—"tanks" or "tank cars") are inscribed аммиак ядовито and сжиженный газ ("ammonia, poisonous" and "liquefied gas").



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Table 4

Ranges of Dimensions of Selected Types of Railroad Cars Used  
on Soviet Mainline Railroads

(Feet)

Type of Car <sup>a</sup>	Length	Width	Height
Boxcar.....	46 to 50	9 to 10	12 to 13
Gondola <sup>b</sup> .....	46 to 54	9 to 11	9 to 12
Flatcar.....	47 to 48	9 to 11	4 to 10
Transporter <sup>c</sup> .....	58 to 135	5 to 11	4 to 13
Tank car.....	35 to 41	9 to 11	14 to 17
Refrigerator.....	46 to 53	10 to 11	13 to 15
Passenger <sup>d</sup> .....	77 to 81	10	14

<sup>a</sup> Railroad cars listed in this table are four-axle types unless otherwise indicated, and the dimensions are approximate maximums of the smallest and largest cars.

<sup>b</sup> Maximum dimensions represent a six-axle car.

<sup>c</sup> All cars have six or more axles. (Also called "deep-well" or "depressed-center" cars).

<sup>d</sup> Including dining, baggage, and mail cars.

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